Broome Technical Community College

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CALENDAR 1962-1963

FALL TERM

September 7, 1962	5:00 P. M.	Cooperative Period Ends
September 10, 1962	8:00 A. M.	Start Cooperative Period
September 14, 1962	1:00 P. M.	Orientation Begins
September 19, 1962	12:00 Noon	Classes Begin
November 21, 1962	12:00 Noon	Thanksgiving Recess Begins
November 26, 1962	8:00 A. M.	Thanksgiving Recess Ends
December 7, 1962	5:00 P. M.	Classes End
December 10-14, 1962		Exams and Registration
December 21, 1962	5:00 P. M.	Cooperative Period Ends

WINTER TERM

December 26, 1962	8:00 A. M.	Start Cooperative Period
January 2, 1963	8:00 A. M.	Classes Begin
March 8, 1963	5:00 P. M.	Classes End
March 11-15, 1963		Exams and Registration
March 23, 1963	5:00 P. M.	Cooperative Period Ends

SPRING TERM

March 25, 1963	8:00 A. M.	Classes Begin and Start Cooperative Period
June 7, 1963	5:00 P. M.	Classes End
June 10-14, 1963		Exams and Registration
June 14, 1963	5:00 P. M.	Cooperative Period Ends
June 15, 1963	2:00 P. M.	Graduation

SUMMER TERM

June 17, 1963	8:00 A. M.	Classes Begin and Start Cooperative Period
July 4, 1963		Independence Day Recess
August 30, 1963	5:00 P. M.	Classes End
September 3-6, 1963		Exams
September 13, 1963	5:00 P. M.	Cooperative Period Ends
September 13-18, 1963		Orientation and Registration

STATE UNIVERSITY OF NEW YORK

The State University of New York was established by the State Legislature in 1948. It comprises 51 colleges. Twenty-eight of them are State colleges and 23 are locally-sponsored community colleges. Although separated geographically, all are united in the purpose to improve and extend opportunities for youth to continue their education after high school.

State University offers cultural and professional four-year programs in liberal arts; science, mathematics, and engineering; home economics; industrial and labor relations; veterinary medicine; ceramics; agriculture; forestry; maritime service; medicine; and teacher preparation, as well as two-year programs in a wide variety of fields, including technical courses in agriculture, industrial, health, and service areas. Several of its colleges offer graduate programs.

Governed by a Board of Trustees appointed by the Governor, State University of New York plans for the total development of State-supported higher education. Each college of State University is locally administered. Students should write directly to the institution in which they are interested for admission forms.

Although State University of New York is one of the largest state universities in the country, its students have the additional advantages of attending relatively small colleges.

The State University motto is: "Let Each Become All He Is Capable of Being."

STATE UNIVERSITY OF NEW YORK

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Secretary of the University .... J. Lawrence Murray
Office: State University of New York, Albany 1, New York

Executive Dean for Institutes and Community Colleges ...... Paul Orvis, B.S.

Associate Executive Dean for Institutes and Community Colleges .... Kenneth T. Doran, B.S., M.S., EdD.

BROOME TECHNICAL COMMUNITY COLLEGE

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Harvey N. Roehl	*B.S., M.Ed., Cornell University; Professional Engineer*	Associate Dean and Registrar
Francis P. Casella	*B.A.A., St. Bonaventure University;* *A.B., M.A., S.U.N.Y. College at Albany*	Extension Coordinator
Michael J. Reynolds	*B.A., Harpur College; M.S., Barry College*	Dir. of Admissions
Leo G. May	*B.Ed., University of Miami*	Admissions Counselor
Neva M. Ash	*R.N., St. Luke's Hospital; B.S., New York University*	College Nurse
Tracy R. Cone		Financial Secretary
Dorothy R. Turner		Secretary to the President

FACULTY

Ralph E. Allen .... Mechanical Technology
B.M.E., Clarkson College of Technology

James D. Baker .... Assistant Librarian
B.S., Ithaca College; M.S., Syracuse University

Richard E. Baldwin .... Director of Athletics and Public Relations
A.B., Ed.M., University of Rochester

Arlene R. Bangilsdorf .... Business Technology
B.A., M.A., Syracuse University

Axford L. Beagle .... Chemical Technology
Canton Agricultural & Technical Institute;
B.Ch.E., Clarkson College of Technology

Robert B. Beers .... Electrical Technology
B.S.E.E., Tri-State College

Joseph R. Biegen .... Mathematics and Physics
B.Ch.E., B.S., Clarkson College of Technology

Dorothy E. Bowling .... Dental Hygiene
D.H., B.S., West Liberty State College

Gino A. Canale .... Chemical Technology
A.A.S., Broome Technical Community College;
B.S., Chemistry, Syracuse University

Robert L. Cann .... Business Technology
B.S., Salem Teachers College; M.A., New York University

Clyde E. Chauncey .... Medical Office Assistant
A.B., Syracuse University; M.A., University of Rochester

John F. B. Clark .... Dept. Head, Medical Office Assistant
B.Sc., Acadia University, Nova Scotia; M.A., University of Michigan;
Sc.D., Great Lakes College

James F. Curran .... General Education
A.B., Fordham University

Gordon K. Dates .... Mathematics and Physics
A.B., Miami University; M.A., Cornell University

Edward F. Dougherty .... Mechanical Technology
B.C.E., Villanova University

William Dervay .... Electrical Technology
A.A.S., Broome Technical Community College

Herbert L. Durst .... Mechanical Technology
B.S., Drexel Institute of Technology

Anne Dvorak .... Business Technology
B.S., M.S., S.U.N.Y. College at Albany

George A. Elliott .... General Education
B.S., Middlebury College; M.A., Columbia University

Blaine K. Ellis .... Mechanical Technology
A.A.S., Broome Technical Community College;
B.S., Rochester Institute of Technology

DONALD W. EMMONS .... Electrical Technology

Canton Agricultural & Technical Institute;
B.S., Oklahoma State University of Agriculture & Applied Sciences

CARLETON S. EVERETT .... Mechanical Technology

B.M.E., Cornell University

DAVID FERGUS .... Chemical Technology

B.S., Ohio University

MARION A. FORBES .... Mechanical Technology

Professional Engineer; A.A.S., Broome Technical Community College

FRANK J. FIASCHETTI .... Department Head, Dental Hygiene

B.S., Syracuse University; D.D.S., University of Pennsylvania; F.A.C.D.

JOAN L. FOLEY .... Librarian

B.S., S.U.N.Y. College at Geneseo

JOHN GRACE .... Chemical Technology

B.S., University of Alabama

CHARLES M. GREENE .... Coordinator of Student Activities and Director of Music

B.S., S.U.N.Y. College at Fredonia; M.S., Ithaca College

HOWARD GREENE .... Chemical Technology

B.Chem.E., Cornell University

R. LEROY GREENWOOD .... General Education

A.B., Allegheny College; Ed.M., University of Buffalo; Ph.D., New York University

WYNETTE GREGG .... Coordinator of Visual Aids

ERWIN C. HAMM .... Electrical Technology

B.E.E., Clarkson College of Technology; M.Ed., Cornell University

ALFRED B. HARROTT .... Mechanical Technology

B.S., B.A., University of Rochester

LLOYD W. HARTMAN .... Dept. Chairman, General Education

B.S., Syracuse University; M.A., Cornell University

HAROLD W. HICKEY .... General Education

A.B., Colby College; M.A., Bates College

RALPH D. HOLLOWAY .... Business Technology

B.S., Oklahoma State University

WARREN W. HOYT .... Mechanical Technology

A. JAMES KALBAUGH .... Dept. Head, Business Technology

B.S., S.U.N.Y. College at Albany
Ed.M., University of Buffalo

MICHAEL J. KAPRAL .... Mechanical Technology

B.S., S.U.N.Y. College at Oswego

EVELYN A. KATUSAK .... Business Technology

B.S., S.U.N.Y. College at Albany

HENRY KETCHAM .... Mathematics and Physics

B.Chem., Ph.D., Cornell University

THOMAS KUBALA .... Electrical Technology

A.A.S., Broome Technical Community College
B.S., Rochester Institute of Technology

John Kushner . . . . Dept. Head, Chemical Technology
E.Met., Colorado School of Mines; M.S., Cornell University

Irwin I. Lawn . . . . Mechanical Technology
M.E., Stevens Institute of Technology

Mary Lehmann . . . . Chemical Technology
B.S., Rensselaer Polytechnic Institute

Richard Leo . . . . Electrical Technology
A.A.S., Broome Technical Community College

Joseph F. Milensky . . . . Mechanical Technology
B.A., Harpur College

S. David Molyneaux . . . . General Education
B.A., Williams; B.S., Massachusetts Institute of Technology;
M.S., Ph.D., Cornell University

Ralph Newton . . . . Business Technology
B.S., University of Alabama

Michael T. Orinik . . . . Chemical Technology
B.S., Penn State University; M.S., Cornell University

Constance S. Pollock . . . . Business Technology
B.S., Russell Sage College

Ronald W. Powers . . . . Electrical Technology
B.A., Syracuse University

Robert L. Reid . . . . Electrical Technology
A.A.S., Broome Technical Community College

Charles Ricker . . . . Mathematics and Physics
B.A., Hartwick,
M.A., S.U.N.Y. College at Albany

Douglas W. Rittenhouse . . . . Mechanical Technology

Frank D. Rollo . . . . Mathematics and Physics
A.A.S., Broome Technical Community College; B.A., Harpur College

William L. Ryder . . . . Mechanical Technology
B.S.M.E., Bucknell University

Fred Sanders . . . . Dept. Head, Mechanical Technology
B.M.E., Pratt Institute

Lois Shumway . . . . Business Technology
B.A., Ohio Wesleyan
M.A., New York University

Gerald R. Seltzer . . . . Electrical Technology
B.S., Penn State University

Irvin C. Simser . . . . Dept. Head, Mathematics and Physics
B.M.E., Clarkson College of Technology; Professional Engineer

L. J. Sitterlee . . . . Dept. Head, Electrical Technology
Rochester Institute of Technology;
B.E.E., M.E.E., Clarkson College of Technology

Arthur H. Skeirik . . . . General Education
B.A., Harpur College

Stephen G. Steele . . . . Mechanical Technology
B.S., Union College; Professional Engineer; Licensed Land Surveyor

David Sterling . . . . Medical Office Assistant
B.S., West Virginia Wesleyan College; M.S., Purdue University

Roxie M. Stitzer . . . . Associate Dept. Head, Dental Hygiene
D.H., University of Pennsylvania School of Dental Hygiene;
B.S., West Liberty State College

Walter Tedick . . . . Business Technology
B.S., University of Alabama

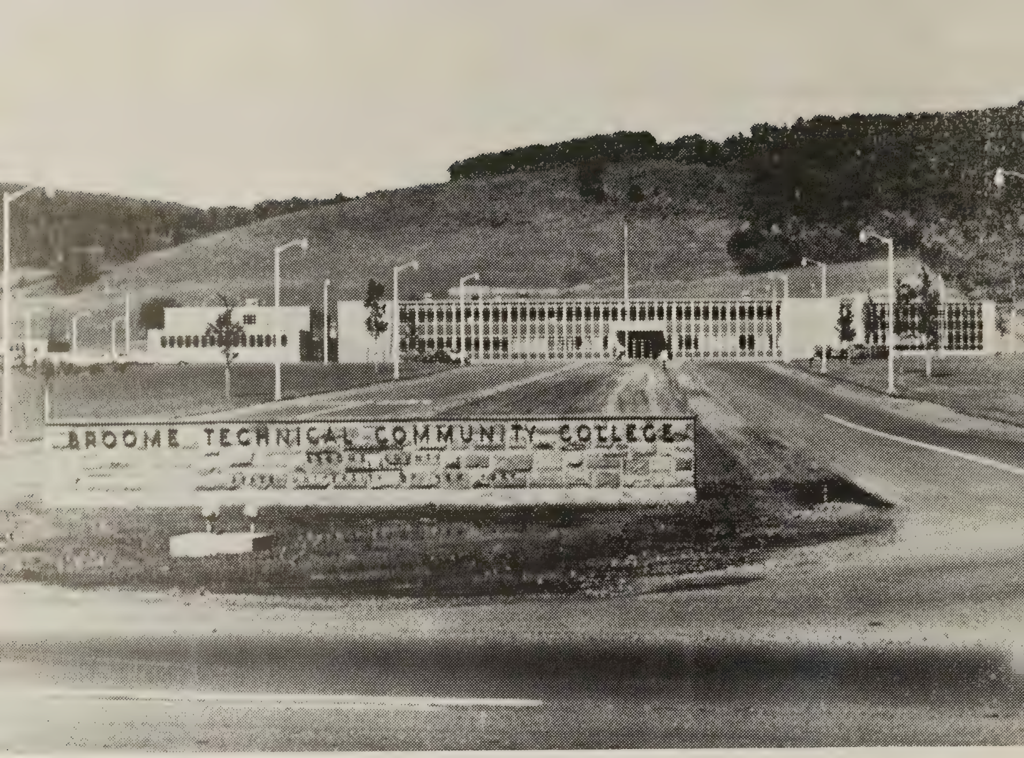
Arelyn C. Thurston . . . . Medical Office Assistant
B.S., M.S., University of Rochester

D. Rene Valentine . . . . Physical Education and Coaching
B.S., S.U.N.Y. College at Cortland

Kathleen A. Valentine . . . . Dental Hygiene
A.A.S., Broome Technical Community College

VISITING FACULTY

Marvin Behr	*B.A., New York University*	General Education
Morgan G. Berry	*D.D.S., University of Pennsylvania*	Dental Hygiene
Robert S. Brooks	*D.D.S., New York University*	Dental Hygiene
Harold Brown	*D.D.S., University of Pennsylvania*	Dental Hygiene
Teresa H. Buran	*B.A., Alfred University*	Medical Office Assistant
James Burnett	*M.D., Hahnemann Medical College*	Medical Office Assistant
Anthony Canale	*D.D.S., St. Louis University*	Dental Hygiene
Robert T. Carman	*D.D.S., University of Buffalo*	Dental Hygiene
Robert F. Clark	*D.D.S., University of Buffalo*	Dental Hygiene
Herbert Darlington	*D.D.S., University of Pennsylvania*	Dental Hygiene
Eugene N. Donnelly	*D.D.S., Marquette University*	Dental Hygiene
Norman W. Elton	*M.D., Boston University*	Medical Office Assistant
James Farrell	*D.D.S., University of Pennsylvania*	Dental Hygiene
Jeanne Hamm	*B.S., University of Buffalo* *R.N., Mt. St. Mary's Hospital, Niagara Falls, N. Y.*	Medical Office Assistant
George Haeseler	*D.M.D., Tufts Dental School*	Dental Hygiene
I. Lawrence Kerr	*D.D.S., University of Pennsylvania* *Diplomat of Board of Oral Surgery, State of New York*	Dental Hygiene
Edward Kozlowski	*D.D.S., University of Buffalo*	Dental Hygiene
Paul Margarone	*D.D.S., University of Buffalo*	Dental Hygiene
James Moriarity	*D.D.S., University of Buffalo*	Dental Hygiene
Nils Nordstrom	*M.D., Long Island; D.D.S., Columbia University*	Dental Hygiene
Thomas Oakes	*B.A., Yale; L.L.B., Geo. Washington University*	General Education
Robert Orcutt	*D.D.S., University of Michigan*	Dental Hygiene
Alfonso Perna	*D.D.S., University of Buffalo* *D.D.S., University of Pittsburgh*	Dental Hygiene
Robert Russell	*B.S., Albany College of Pharmacy*	Medical Office Assistant
J. Glezen Watts	*D.D.S., University of Buffalo*	Dental Hygiene
Joseph Zeger	*D.D.S., University of Illinois*	Dental Hygiene
Leonard Zeldow	*D.D.S., University of Pennsylvania*	Dental Hygiene



Broome Technical Community College

HISTORY OF THE COLLEGE

Broome Tech graduated its first class in 1949. These students had entered what was then known as the New York State Institute of Applied Arts and Sciences at Binghamton in the Fall of 1947. The original institute was one of five founded in the state in 1946, following the pattern of six agricultural and technical institutes which New York had established earlier in the century. The first programs offered were all terminal in nature and included Chemical, Electrical, and Mechanical Technologies, as well as Medical Office and Technical Office Assistants courses.

In 1953, New York relinquished operating control of the school to a new sponsor, the County of Broome, under provisions of the newly-enacted State Community College Law, and the name was changed to Broome County Technical Institute. In 1957 the name was again changed to Broome Technical Community College to reflect the increasingly comprehensive nature of its educational offerings.

In keeping with the comprehensive objectives of this community college, a university-parallel curriculum was instituted in the Engineering Sciences in 1959 and a two-year program of Liberal Arts and Sciences has been approved by the County Board of Supervisors and State University Board of Trustees to be instituted in September, 1962.

The first five years, the school was housed in a refurbished State Guard armory in downtown Binghamton. This building was gutted by fire in September of 1951, and for the next five years temporary quarters in three other buildings in the city provided quarters. In 1957 the college moved to an attractive new three-million-dollar campus, on the north side of Binghamton on route 11. The first addition to the original campus was initiated when construction was begun on a new classroom building in the Fall of 1961 with completion planned for the Fall of 1962. The present 53-acre site should accommodate anticipated expansion for the next two decades.

OBJECTIVES OF THE COLLEGE

1. To provide the environment and the experiences which promote the students' vocational competency, individual growth, and social responsibility through integration of the following:

Knowledge: The acquisition of facts, principles, theories, and insights which are fundamental to the understanding of a specialized field of study and of life itself.

Cognizance of common sources of information for further intellectual growth.

Proficiency: Development of analytical thinking and language abilities for the comprehension, evaluation, and communication of knowledge.

Development of laboratory techniques relevant to the students' chosen vocational field.

Attitudes: The stimulation for personal growth—vocational, intellectual, cultural and physical.

The appreciation of and commitment to desirable social values.

2. To commit the resources of the College to the business, industrial, educational and cultural enrichment of the community.

PROGRAMS OF THE COLLEGE

Broome Tech is a two-year, co-educational community college. It seeks to provide, through a full-time day program, part-time extension division, and summer school, educational opportunities for all who can benefit by them. The full-time day curricula combine general education with technical education to prepare young men and women for permanent employment after graduation. In addition two programs (Liberal Arts & Sciences and Engineering Science) provide opportunity for transfer to higher institutions. An Associate degree is conferred on graduates of the college.

The extension division offers a wide variety of specialized unit courses and sequential programs leading either to a diploma or the Associate Degree.

The summer program is organized mainly to meet the needs of high school graduates who wish or require additional course work before entering or returning to college.

Applicants to the college should consider carefully the type of program they wish to pursue, for the nature of the offerings makes it all but impossible for a student to switch easily from one curriculum to another after commencing his studies. The student should also try to decide whether he wishes to be prepared to accept employment immediately upon graduation, or to prepare himself for further college training at a senior institution upon completion of work at Broome Tech.

TECHNICAL PROGRAMS

In the area of technical education, the college offers five programs. One, Engineering Science, is in effect the first two years of an engineering curriculum, and students who do satisfactory work in it should experience little difficulty in transferring to engineering colleges.

The other four are designed to train engineering technicians in the fields of Mechanical Technology, Chemical Technology, Electrical Technology, and Civil Technology. Graduates of these programs are prepared for immediate employment in various types of technical work upon leaving the college.

HEALTH CURRICULA

Women interested in the field of health services may seek admission to the Dental Hygiene or the Medical Office Assistants programs. Dental Hygiene graduates are qualified to take the state licensing examinations which permit them to perform oral prophylaxes either in dental offices or schools. If they choose, they may take advantage of a special program arranged with the State University College at Cortland, New York, which leads to a Bachelor of Science Degree in Health Education through additional study of two years and one summer's duration.

Those enrolled in the Medical Office Assistants course are trained to assist in physicians' offices, not only in many routine phases of laboratory work, but in secretarial practices as well.

BUSINESS

The Business Technology curriculum is designed to prepare graduates for immediate employment in one of three fields: Engineering Secretarial, Accounting, or Marketing Management. Although this program is terminal in nature, a number of its graduates have earned higher degrees in business administration and business education.

LIBERAL ARTS AND SCIENCES

This curriculum is a university-parallel course, designed especially for the student who wishes to transfer to a senior institution after graduation. A sound liberal arts education is basic to many of the professions, such as medicine, law, or teaching, and applicants who have such a goal would be well-advised to consider this selection. It is also considered excellent preparation for further schooling in business administration. Many students simply do not know what field to select as a goal; a liberal arts course may serve as a foundation from which a choice of major study can be made at a later date with a minimum loss of time.

GENERAL EDUCATION

Students in all programs spend approximately one fourth of their time studying such general education subjects as English, psychology, and economics. The college recognizes that in addition to technical competence, a graduate should study those subjects which aid in understanding people and their every-day working and personal inter-relationships.

TECHNICAL PREPARATORY

The requirements vary for admission to the different programs. Students who lack the minimum requirements for admission to the engineering technology programs may request enrollment in the Pre-Technical course. This is a year-long sequence of technical work and English, with special emphasis on physics and mathematics. Students in this program are not considered to be regular college students and no college credits are granted for completion of these courses. At the end of the year, students are evaluated by the faculty and must be recommended for entrance to a regular program in the subsequent year. (See page 85)

ACADEMIC STANDARDS AND REGULATIONS

GRADING SYSTEM

Honor Points Per Credit Hour	Grade	Explanation
4	**A**	Outstanding achievement in meeting the objectives of the course.
3	**B**	Above average achievement
2	**C**	Average achievement
1	**D**	Below average achievement
0	**P**	Poor achievement — no honor points
0	**F**	Failure to meet the objectives of the course
0	**W**	Withdrawn before the middle of the term
0	**WP**	Withdrawn passing (following the middle of the term)
0	**WF**	Withdrawn failing (following the middle of the term)
0	**I**	Incomplete. Work to be made up within one week or by special arrangement with the department.

Scholastic Standing

To remain in satisfactory standing, a student must earn a point average of 1.2 the first term, 1.4 the second term, 1.5 the third term, and 1.5 for each succeeding term until graduation.

In order for a student to remain in good standing he must also demonstrate a mature attitude of interest and cooperation.

Grades are issued at the end of each term. All students doing unsatisfactory work at midterm will be so notified.

Any student who does not maintain this minimum point average in any term is placed on probation for the following "on campus" term.

Honors

At the end of each term students who have earned an average of 3.0 or above are placed on the Honor Roll. Those who have earned 3.5 or better are named to the President's High Honor List.

Attendance Regulations

Every student is expected to attend all sessions of classes and laboratory work for which he is registered, and all absences and tardiness will be recorded.

Excuses for absence will be granted in accordance with instructions outlined in the Student Handbook. Unexcused absences from classes are considered valid reason for dismissal or other disciplinary action.

Withdrawal

A student compelled to withdraw at any time must immediately notify the Student Personnel Office and complete the proper termination form. Failure to comply with this regulation will cause the individual to forfeit his right to honorable dismissal and to lose any refund of fees.

Dismissal

Students may be considered for dismissal for the following causes: More than one consecutive probationary period, more than one failing grade in a term, failure to earn a point average of 1.0 in any term; irregular attendance; neglect of work or financial obligations; failure to comply with College rules and regulations or official notices; conduct unbecoming a student.

Any action leading to the requested withdrawal of a student is taken up by the Executive Committee. Any student has the right to petition his department staff to waive the academic requirements of the College leading to dismissal; such petitions are acted upon by the Executive Committee upon their presentation by the department concerned. The College reserves the right to be the sole judge in all matters pertaining to dismissal.

ACADEMIC REQUIREMENTS AND REGULATIONS

REQUIREMENTS FOR GRADUATION

The Associate in Applied Science Degree

1. Degree requirements: a minimum of 102 quarter credits.
2. Curriculum requirements:
   - a) A minimum of 60 credits in a student's major field. These are courses intrinsic to and required by the various curricula.
   - b) A minimum of 30 credits in general education or liberal arts courses.
     - 1) Social Sciences: a minimum of 9 credits
     - 2) Biological and Physical Sciences (including Mathematics): a minimum of 9 credits
     - 3) Humanities: a minimum of 9 credits in English (composition and/or speech)
     - 4) Electives (or additional courses) in the foregoing fields comprising a minimum of 30 credits in the liberal arts and sciences or general education areas
3. Quarter point averages must total 8.60 for a six-quarter program or the equivalent thereof.
4. Satisfaction of all obligations to the College.

The Associate in Arts Degree

1. Degree requirements: a minimum of 90 quarter credits (in addition to physical education)
2. Curriculum requirements:
   - a) Social Sciences: a minimum of 18 credits
   - b) Biological Sciences and Physical Sciences or Mathematics: a minimum of 12 credits
   - c) Humanities: a minimum of 27 credits, of which 18 shall be in English (composition, speech, and literature) and 9 of which shall be in other subjects in the humanities
   - d) Electives: 80% shall be in the fields of study listed above.
   - e) Physical Education: a minimum of 6 credits. Exception to this requirement may be made by the Dean of the College.
3. Quarter point averages must total 8.60 for a six-quarter program or the equivalent thereof.
4. Satisfaction of all obligations to the College.

ADMISSION

Entrance Requirements:

A high school diploma or the equivalent is required for entrance to all curriculums. All applicants must take the Scholastic Aptitude Test of the College Entrance Examination Board. Applicants for curriculums other than Business, Dental Hygiene and Medical Office Assistant are also required to complete the Intermediate Mathematics Achievement Test of the CEEB. All applicants must appear at the college for a personal interview.

In addition, an applicant must meet the minimum requirements of physical ability required by the occupational field in which he wishes to engage. He must also be recommended by his high school principal or guidance counselor.

In planning for college, it is advisable that the high school student enroll in a college preparatory curriculum. The following table should help in planning a high school program.

Curriculum	Recommended High School Subjects	Other Desirable High School Subjects
Business	2 units Mathematics, 2 units of Science	Shorthand and typing will qualify the student for advanced courses.
Chemical	Chemistry, 3 units Mathematics including Trigonometry	Physics, Other Advanced Mathematics
Civil Technology	Physics, 3 units Mathematics including Trigonometry	Other Advanced Mathematics
Dental Hygiene*	2 units Mathematics, Biology, Chemistry	Social Studies
Electrical	Physics, 3 units Mathematics including Trigonometry	Other Advanced Mathematics
Engineering Science	Chemistry, Physics, 3½ units in Mathematics including Advanced Algebra	College preparatory courses
Liberal Arts and Sciences	2½ units Mathematics 2 units of Science	College preparatory courses
Mechanical	Physics, 3 units Mathematics including Trigonometry	Other Advanced Mathematics
Medical Office Assistant	2 units Mathematics, Biology, Chemistry	Typing, Shorthand

*Applicants for Dental Hygiene are encouraged to take the Dental Hygiene Aptitude Test of the American Dental Hygiene Association. Information will be sent following receipt of application for admission to the college.

Applicants who do not satisfactorily meet the entrance requirements may apply for entrance to the Pre-Technical program. This preparatory year program, under the direction of the Extension Division, provides opportunity for the student to strengthen his academic background so that he may enter the full-time program with a better expectation of successful accomplishment.

Application Procedure

New students are admitted only in September of each year. However, applications will be accepted at any time during the year.

An application for admission must be made on official forms supplied on request by the Admissions Office.

A deposit of $10 must accompany each application. The deposit is non-refundable but is applied as an advance payment on the student activity fee if the application is accepted. Once a student is accepted, he will be billed for an advance payment of $50 on tuition. This is also non-refundable.

Each applicant will be interviewed by members of the Committee on Admissions. An appointment will be made after the applicant's deposit, application and other required credentials have been received. Appointments for interviews will normally be made after January 1st of each year.

Advanced Standing Students

Applications are accepted from students who have been enrolled in other accredited colleges if they meet satisfactory entrance requirements.

Transfer of credit for advanced standing is subject to the approval of the Department Head and the Registrar.

At the time of application, students wishing to transfer credit should request the registrar of the college they have attended to forward an official transcript to the Broome Tech Admissions Office.

Late Registration

An applicant may not register later than two weeks after the beginning of the Fall term except by special permission.

GENERAL INFORMATION

EXPENSES

Tuition

For New York State residents (Payable at the rate of $100.00 per term)	$300.00 per year
For out-of-state residents (Payable at the rate of $200.00 per term)	$600.00 per year

Tuition for all students is payable at the beginning of each of the first three quarters of the school year, regardless of Cooperative work assignment.

Fees

Tuition and fees are payable at the Finance Office not later than the last day of the first week of each term. Any refund is at the option of the College. The College reserves the right to change the following fees:

Student activity	$35.00 per year*
Health	$23.00 per year**
Graduation	$20.00***
Late registration	$ 5.00
Chemistry breakage	$10.00†
Chemistry laboratory fee	$ 5.00††

* The $10.00 deposit required with the application becomes advanced payment on the activity fee if the applicant is accepted. The activity fee entitles students to admission to varsity games, informal dances and parties, and a subscription to the yearbook and Tech Talk, the student newspaper.

** The health fee covers the cost of the student health insurance program.

*** This fee is paid at the start of the term preceding graduation. One half of this is for life membership in the Alumni Association.

† All students taking Chemistry courses are required to obtain a ten-dollar breakage ticket which will be refundable for the unused portion.

†† This is a non-refundable fee payable at the rate of $5.00 per term for each chemistry laboratory course in which a student enrolls.

Books and Supplies

Each student provides at his own expense the necessary books and instructional materials. These may be purchased at the Book Store maintained by the Faculty-Student Association for the convenience of the students. The cost varies, depending on the curriculum, from $45.00 to $125.00 per year.

Uniforms and dental instruments for Dental Hygiene students will cost approximately $100.00.

Living Accommodations

The college does not maintain dormitories. Local students of course live at home. Other students are required to live in rooms which have been inspected and approved by the college, or at the Y.M.C.A. or Y.W.C.A. Lists of approved rooms are maintained and students are assisted in finding suitable living quarters.

Board and Room

The cost of board and room for out-of-town students is dependent upon the demands of the student. The average cost varies from $18.00 to $25.00 per week.

Length of Curriculum

All programs are two years in length. The college year is divided into four terms of approximately eleven weeks each. Students enrolled in the cooperative work curriculums — Electrical Technology and Mechanical Technology — spend a total of six terms on campus and one term in industry. Students in the other curriculums spend three terms on campus each year.

Cooperative Work Program

In the work-study plan students are placed in jobs related to their major field of study for one employment period. Students are paid the prevailing wages for the job they do. Cooperative students in the technology curriculums earn $500 to $700 for the cooperative period.

The program offers other distinct advantages:

1. It is exploratory. The student has a chance to survey and evaluate a number of different jobs within his field. At the same time he can take stock of his own abilities and interests.
2. It is an opportunity to correlate classroom studies with actual work experience.
3. It is a means of demonstrating the importance of human relations in the work situation.

Cooperative work students are expected to "earn their own way," to perform the duties required without special favor. At the end of the period employers submit a report covering the student's performance.

FINANCIAL AID

Many young people are denied the advantages of higher education because of the costs. Broome Technical Community College has made a sincere effort to overcome these economic barriers through its Student Aid Association, which in cooperation with industries and organizations in Broome County, has established both a Scholarship Fund and a Loan Fund.

Scholarships

Nearly fifty scholarships and grants-in-aid of about $200 each have been established to recognize outstanding scholarship and/or financial need of applicants to Broome Technical Community College. These awards are made primarily to entering freshmen students to help defray most or all of the first term's expenses. Students may apply for these grants at the time of making application for entrance to the college.

Contributors to the scholarship fund:

Ansco Division of General Aniline & Film Corporation
The Azon Corporation
Binghamton Container Company, Inc.
The Binghamton Savings Bank
Binghamton Cold Storage
Broome Technical Community College Alumni Association
Broome Technical Community College Business Club
Cadre Industries Corporation
Chernin & Gold, Attorneys
Clark-Cleveland, Incorporated
Conrad & Virginia Klee Foundation, Inc.
Crowley's Milk Company
David E. Meade Scholarship Awarded by Kiwanis Club of Binghamton
Endicott Forging & Manufacturing Company
Endicott Johnson Corporation
Fairbanks Company
First-City National Bank
International Business Machines Corporation
Junior League of Binghamton
LaMonica's
Link Aviation Corporation
Marine Midland Trust Company
McIntosh Laboratory Incorporated
National Office Management Association, Triple Cities Chapter
Ozalid Division, General Aniline & Film Corporation
Mr. and Mrs. Charles Pierson
Scintilla Division, Bendix Aviation Corporation
Technical and Engineering Council of the Southern New York Area
Stow Manufacturing Company
E. H. Titchener & Company

Following are contributors to the restricted scholarship fund:

American Society of Tool Engineers. One scholarship of $200 to be awarded to a student entering the Mechanical Technology curriculum.

Binghamton Chapter, National Secretaries Association Scholarship. Established in 1954, one scholarship of $200 to be awarded to a graduate of one of the Triple Cities high schools entering the Business Technology curriculum. Recipient to be judged on the basis of scholastic ability, character, personality and financial need.

Broome County Medical Society Scholarship. An annual award of $200 to that student completing the first year in the Medical Office Assistant program who has been selected by the faculty on the basis of aptitude, initiative and scholarship.

Civic Club of Binghamton Award. Established in 1953, awards of $125 are given to three young women, graduating from one of the Binghamton high schools, wishing to enter the College.

Endicott Rotary Scholarship. An annual award of $300 granted to a graduate of Seton Catholic High School or Union-Endicott High School in the city of Endicott.

Johnson City Lion Scholarship. An annual award of $200 awarded to a graduate of the Johnson City High School.

Rappaport Freshman Scholarship. One scholarship of $200 to be given to a worthy student graduating from the Chenango Valley Central School.

Triple Cities Business and Professional Women's Club Award. Established in 1954, an award of $100 is given to one or two young women entering the College in the Medical Office Assistant or Business Technology curriculum. Recipient is selected from the graduates of schools in the Triple Cities area.

Soroptomist Club Scholarship. An annual scholarship of $200 is given to a student entering the Dental Hygiene program. The selection of the candidate is based upon financial need, quality of scholarship in the high school, and aptitude as a dental hygienist.

Women's Auxiliary of the Broome County Dental Society. A fund established for a deserving student in the Dental Hygiene curriculum who might need assistance to complete studies at the College.

In addition to the above, recipients of New York State Regents Scholarships may use them at the College, although the Regents Scholarship for Engineering and Scientific Studies is applicable only to the Engineering Science program.

Student Loans

Students enrolled at the college are eligible to borrow from either the New York Higher Education Assistance Corporation or from funds made available under the auspices of the National Defense Loan Program. Students may borrow to a maximum of $1,000 at nominal interest rates and with repayment periods up to 10 years.

More information may be obtained from the Student Personnel Office.

Scholar Incentive Award

Under the provisions of the Scholar Incentive Program students attending Broome Technical Community College who are residents of New York State are eligible for a Scholar Incentive Award. The Award is a direct grant payable to the student from the State of New York in two payments each year—September, February.

Payments to Broome Tech students will amount to approximately $100 per student each academic year. A student who does not complete a full academic year may be requested by the State of New York to return part of the grant proportionate to the amount of the term not completed.

Applications for the Scholar Incentive Award may be obtained from the Admissions Office. It is the responsibility of the individual student to complete and file an application for the Award. Completed applications should be sent directly to the Division of Educational Testing, State Education Department, Albany 1, New York.

Employment and Placement

Part time work is often available throughout the academic year. Students desiring such work should consult with Mrs. Newman in the College Placement office.

In cooperation with the Department Heads, Mrs. Newman coordinates permanent placement, including employment listings and appointments for interviews.

After Graduation

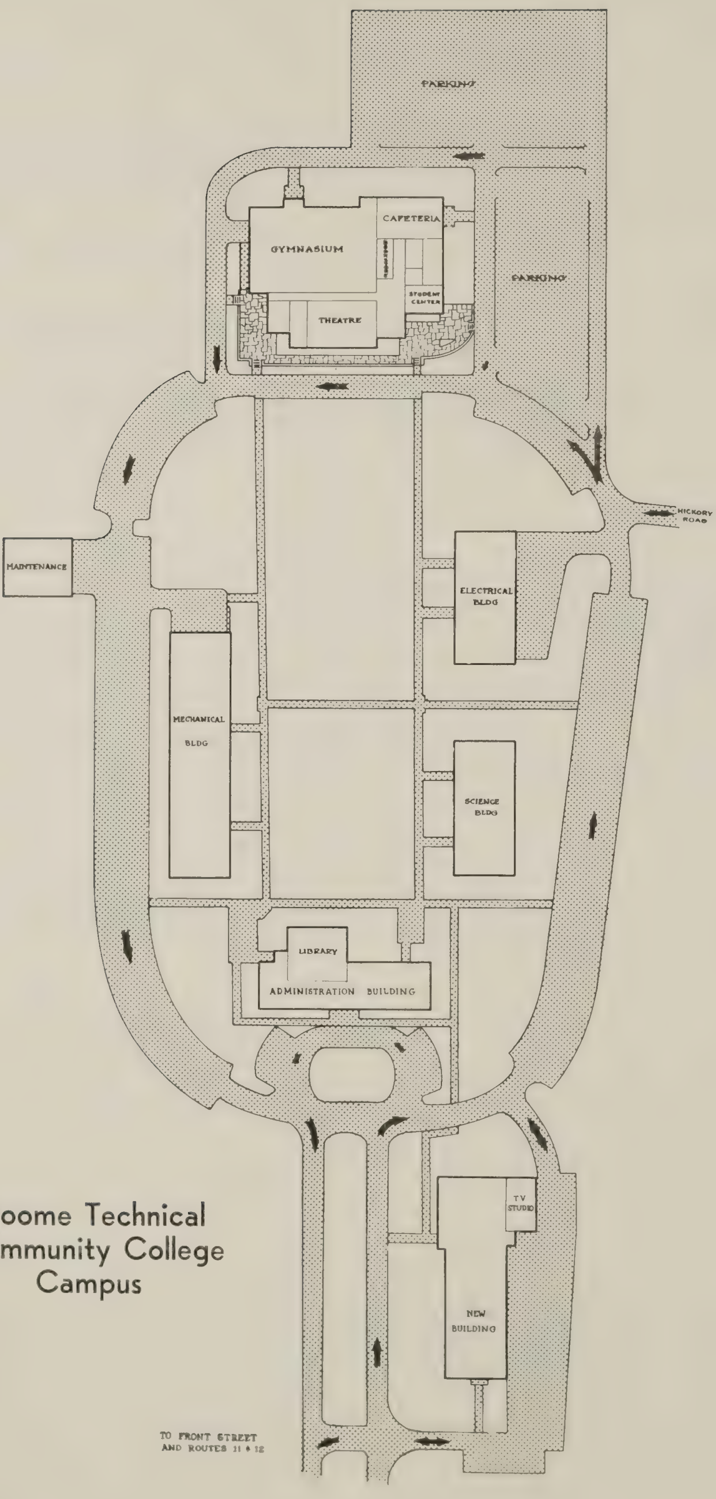
Each graduate is entitled to two transcripts of his work completed at the College. One dollar is charged for each additional transcript.

Graduates are eligible for membership in the Broome Tech Alumni Association. Two annual events highlight the Association's Activities: Spring Day, featuring an Alumni-Varsity baseball game and a picnic, and late in November a dinner, election of officers, and an Alumni-Varsity basketball game.

Graduates who are working nearby are urged to take advanced courses offered in the Evening Extension Division.

Veterans

All full-time curriculums are approved by the Veterans Administration. Those applicants wishing to obtain government educational benefits should consult their nearest veterans agency.



Broome Technical
Community College
Campus

THE CAMPUS

Broome County, an industrial and agricultural area, is in the Southern Tier of New York State. Its industries are largely concentrated in the population centers of Binghamton, Johnson City, Endicott and Vestal, together forming a community well known for its economic stability and community spirit.

The products of the major industries manufacturing shoes, business machines, cameras and photographic supplies, and aircraft trainers and components are known the world over. Smaller industries turn out hundreds of diversified products. The combination of "big town" features with "small town" atmosphere makes the area an ideal one in which to work and live. The college is fortunate in its location and is proud to make its contribution to the community.

The new campus of Broome Technical Community College is located three miles north of Binghamton on U.S. Routes 11 and 12. Here in a suburban setting a $4,000,000 plant has been constructed to serve the educational needs of the community. The campus consists of seven buildings of modern functional design, an athletic field, and ample parking space.

ADMINISTRATION BUILDING — Offices, library, business education, classrooms.

MECHANICAL BUILDING — Laboratories, shops, classrooms for mechanical and civil technology.

ELECTRICAL TECHNOLOGY BUILDING — Laboratories, shops, classrooms.

SCIENCE BUILDING — Laboratories, classrooms for chemical technology, medical office assistants, and dental hygiene.

MAINTENANCE BUILDING

GYMNASIUM-STUDENT SERVICE CENTER — gymnasium, cafeteria, book store, student lounge, activities rooms, little theatre auditorium, small corrective gym.

TITCHENER HALL — Engineering Science and General Education offices, classrooms, and laboratories.

THE LIBRARY

The primary purpose of an academic library is to further the objectives established by the institution of which it is a part. The Library at BTCC has a carefully selected, well-balanced collection of 14,000 books, pamphlets, and government documents fully prepared for use, and subscriptions to over 300 periodicals, most of which are available in permanent form. Since more than half of these materials are in the scientific and engineering fields and include both basic and advanced reference works, BTCC has the most complete technical library in the area. Located in the southwest wing of the Administration Building, this library provides facilities for research and leisure reading for both faculty and students. It also remains open four evenings a week to be of service to extension students and other members of the community. Furthermore, close cooperation is maintained with other libraries both to enlarge the scope of the Library holdings and to accommodate local business and industry. Since important objectives of library service are to stimulate intellectual curiosity and provide the means for independent research, two librarians are on hand to instruct students in the profitable use of the Library's resources. Open shelves with a stack capacity of 20,000 volumes hold the Library's collection, to which additions are made continually in cultural and recreational fields, as well as the rapidly-changing technologies. Finally, the Library works closely with the Visual Aids Department, which provides equipment and selection aids for films, film-strips, tapes, charts and models, to further implement the teaching program of the College.

CO-CURRICULAR ACTIVITIES

The College recognizes the fact that student experiences outside the classroom are important in his overall development. For this reason the College supports an active co-curricular program as a complement to the academic program. The variety of activities on the campus reflects the diversification of student interests and provides the opportunity for students to develop talents, leadership ability, and a sense of social responsibility.

Student Council

The Student Council, the governing body in student affairs, is the heart of the co-curricular activity program. The officers—elected from the student body at large—and the representatives from the various curricula promote and co-ordinate the student activities.

Student Activity Committee

The Student Activity Committee, composed of four faculty members and the President of the Student Council, approves budgets, recommends, and supervises the policy of all student activities except athletics.

Student Christian Association

The Student Christian Association exists as an organization whereby students may share Christian conviction and common experiences through meetings, discussions, and various types of programs.

Business Club

The purpose of the Business Club is to acquaint the community with the work of the Business Technology Department and to acquaint students with the businesses and industries of the area. The club is an affiliate of the Triple Cities Chapter, National Office Management Association.

Dental Hygiene Association

The Dental Hygiene Association is an organization of Dental Hygiene students to stimulate interest in their field through lectures, demonstrations, social, educational, and recreational activities.

Social Committee

The Social Committee initiates and promotes dances, parties, and picnics. One of the biggest responsibilities of this committee is to plan the Annual Spring Weekend. Most of the affairs are informal and are held in the Student Center Building.

Future Secretaries Association

The Girls Friday Chapter FSA, an affiliate of the National Secretaries Association (International) Binghamton Chapter, stimulates interest in and develops a better understanding of a secretarial career.

Athletic Board of Control

The Athletic Board of Control—composed of four faculty members and one student—develops and recommends policy for the intercollegiate, intramural, and club athletic programs of the college.

Varsity Sports

The Hornets have become well-known throughout the country in the two-year college sports picture, sponsoring varsity teams in soccer, cross country, basketball, baseball and golf. The basketball team in particular has earned national recognition, while both the baseball and golf teams have also been highly successful in competition against other two-year colleges.

Intramural Sports

Students of average athletic ability have an opportunity to participate in intramural sports: Teams representing the various curriculums compete for the coveted President's Trophy, awarded annually to the one that has acquired the most points in a variety of activities. League competition is conducted in flag football, basketball, volleyball and softball, while students also compete in individual sports such as golf, badminton, archery and bowling. Archery, ski and co-educational bowling clubs offer additional opportunity for participation in recreational activities.

NOTE: Any student participating in Intramurals or otherwise using the College's physical education facilities must pay a $2.00 lock charge (refundable) and a $6.00 towel charge (refundable at $2 per quarter should the student terminate early). This charge will be collected by the Athletic Office at the start of the fall quarter.

Cheerleaders

Positions on the varsity cheerleading squad are open to both men and women on a competitive basis.

Publications

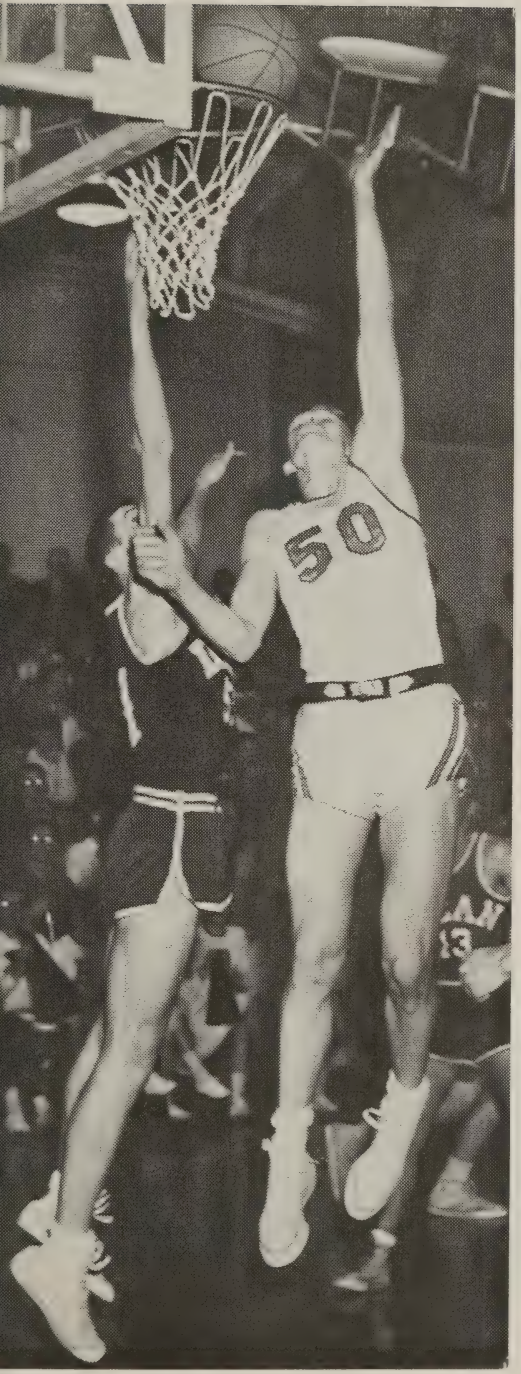
Tech Talk is the student newspaper published once a month and devoted to the reporting of news and features of College life. The yearbook is known as the Citadel. Positions on both publications are open to students interested in writing, art and advertising.

Camera Club

For those interested in photography the Camera Club provides the chance to get experience in picture taking, developing, printing and enlarging. A well-equipped darkroom is available for student use. Most of the photographic work on the newspaper and yearbook is done by members of the club under faculty supervision.

Dramatics

"The Teasers and Tormentors" offer a variety of outlets for those students with theatrical interests. There is ample opportunity for acting, writing, directing, and technical production in the club's program. Members who fulfill the requirements are eligible for election to Delta Psi Omega National Dramatic Fraternity.



Although Broome Tech participates in five intercollegiate sports, basketball has long been king on the campus. For years a power in Eastern Juco (Junior College) basketball, the 1960-61 Hornets (30 wins—2 losses) received nationwide acclaim, being named the country's #1 team in the National Junior College Athletic Association coaches' poll. Through the 1960-61 season the basketball Hornets have 287 wins to only 78 losses, have six times been champs or co-champs of the Empire State Conference, and have six times won the Eastern States Juco title.

Music

The Student Council sponsors two performing vocal groups, the College Choir, which is open to both men and women students, and the Tech Tone-Masters, a male glee club. On occasion, students perform with the faculty in a Faculty-Student Chorus. The College musical organizations also have joined with the Civic Theatre of Binghamton for the cooperative production of Broadway musicals. Each year in the fall an oratorio chorus of faculty, students, and members of the community meet to perform the Handel oratorio, "The Messiah."

Class Organizations

Each entering class elects officers and an executive committee to plan and carry through the many class activities, including the King Tech Dance, the Queen of Hearts Ball, and the Graduation Dinner-Dance.

Newman Club

The Newman Club is an informal group organized to foster a better understanding of Catholic ideology. The program features religious lectures and discussions and social events.

Technical Societies

Since many meetings of national technical societies are held on campus, students in the technology curriculums have the opportunity of becoming acquainted with professional men in their field and of attending outstanding lectures, films, and demonstrations of new developments.

For example, Chemical Technology students are invited to attend local meetings of the American Chemical Society while students in Electrical Technology may belong to a student associate branch of the Institute of Radio Engineers. Students interested in the field of mechanical design and production may join the chartered student branch of the American Society of Tool and Manufacturing Engineers.

Circle K

Circle K is a student organization which is sponsored by the Chenango Valley Kiwanis organization. One of the major purposes of the club is to foster good citizenship through service to others. Membership is open to all men students on campus.

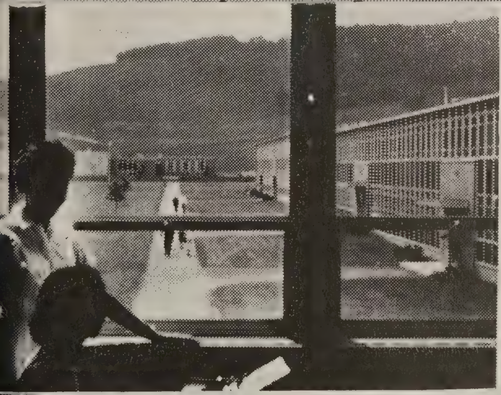
Honor Society

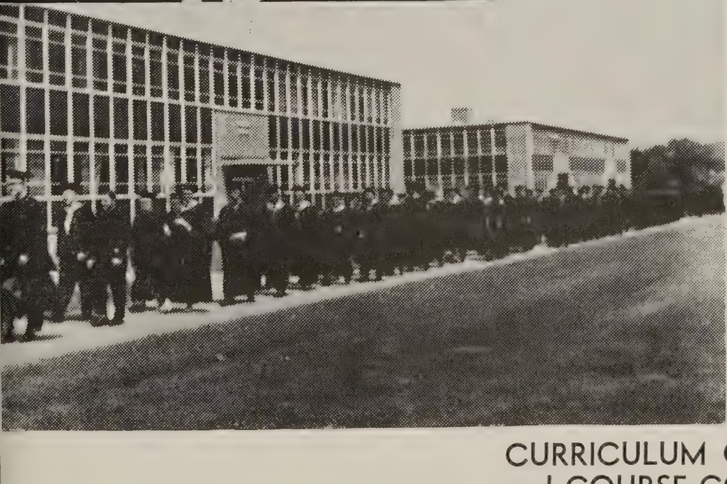
Freshman and Senior students who have achieved outstanding academic grades and have actively participated in co-curricular programs are nominated for membership by faculty and student members at the annual Moving-up Day convocation.

Faculty-Student Association

This is a non-profit organization, incorporated under the laws of New York State, operated by faculty officers with a student advisory board. The association operates the book store, cafeteria, vending machines and pay telephones.

College Choir





CURRICULUM OUTLINE and COURSE CONTENT

CURRICULUM OUTLINE

BUSINESS TECHNOLOGY

Accounting Option

1st YEAR

		Hours Per Week		
Term	**1 (Fall)**	**Class**	**Lab**	**Credits**
71	English	3	0	3
150 107	Mathematics or Mathematics	3	0	3
91	Psychology	3	0	3
601	Typewriting (or elective)	5–3	0	2–3
640	Accounting	2	2	3
648	Survey of Business	3	0	3
		19–17	2	17–18
Term	**2 (Winter)**			
72	English	3	0	3
92	Economics	3	0	3
135	Science	2	2	3
602	Typewriting	5	0	2
611	Business Mathematics	3	0	3
641	Accounting	2	2	3
		18	4	17
Term	**3 (Spring)**			
73	English	3	0	3
94	Sociology	3	0	3
664	Marketing	3	0	3
615	Business Statistics	3	0	3
642	Accounting	2	2	3
652	Finance	3	0	3
		17	2	18

2nd YEAR

Term	**4 (Fall)**			
643	Cost Accounting	2	2	3
645	Machine Accounting	2	2	3
654	Payroll Accounting	2	2	3
658	Business Law	3	0	3
670	Office Machines	2	4	4
691	Personnel Administration	3	0	3
		14	10	19
Term	**5 (Winter)**			
644	Cost Accounting	2	2	3
646	Tabulating Machine Wiring	2	2	3
659	Business Law	3	0	3
661	Office Management	3	0	3
669	Internal Auditing	2	2	3
671	Office Machines	2	4	4
		14	10	19
Term	**6 (Spring)**			
75	Effective Speaking	3	0	3
647	Machine Accounting	2	2	3
660	Federal Tax	2	2	3
662	Office Management	3	0	3
675	Business English	3	0	3
695	Industrial Organization & Management	3	0	3
		16	4	18

CURRICULUM OUTLINE

BUSINESS TECHNOLOGY

Engineering Secretarial Option

1st YEAR

		Hours Per Week		
Term 1 (Fall)		Class	Lab	Credits
71	English	3	0	3
150 107	Mathematics or Mathematics	3	0	3
414	Engineering Drawing	0	3	1
601	Typewriting (or elective)	5–3	0	2–3
604 605	Shorthand or Shorthand	5	0	3
640	Accounting	2	2	3
648	Survey of Business	3	0	3
		21–19	5	18–19
Term 2 (Winter)				
72	English	3	0	3
136	Physics	2	2	3
602	Typewriting	5	0	2
605 606	Shorthand or Shorthand	5	0	3
611	Business Mathematics	3	0	3
641	Accounting	2	2	3
		20	4	17
Term 3 (Spring)				
73	English	3	0	3
91	Psychology	3	0	3
137	Physics	2	2	3
603	Typewriting	5	0	3
616	Transcription	5	0	3
642	Accounting	2	2	3
		20	4	18
Term 4 (Fall)	2nd YEAR			
230	Chemistry	4	0	4
608	Technical Shorthand	5	0	3
645	Machine Accounting	2	2	3
654	Payroll Accounting	2	2	3
658	Business Law	3	0	3
691	Personnel Administration	3	0	3
		19	4	19
Term 5 (Winter)				
75	Effective Speaking	3	0	3
94	Sociology	3	0	3
418	Shop	1	3	2
609	Technical Shorthand	5	0	3
656	Office Practice	2	4	4
659	Business Law	3	0	3
		17	7	18
Term 6 (Spring)				
606 607	Shorthand or Shorthand	5	0	3
657	Office Practice	2	4	4
675	Business English	3	0	3
695	Industrial Organization & Management	3	0	3
	Elective	3	0	3
92	Economics	3	0	3
		19	4	19

CURRICULUM OUTLINE

BUSINESS TECHNOLOGY

Marketing Management Option

1st YEAR

		Hours Per Week		
Term 1 (Fall)		Class	Lab	Credits
71	English	3	0	3
150 107	Mathematics or Mathematics	3	0	3
91	Psychology	3	0	3
601	Typewriting (or elective)	5–3	0	2–3
640	Accounting	2	2	3
648	Survey of Business	3	0	3
		19–17	2	17–18
Term 2 (Winter)				
72	English	3	0	3
92	Economics	3	0	3
135	Science	2	2	3
602	Typewriting	5	0	2
611	Business Mathematics	3	0	3
641	Accounting	2	2	3
		18	4	17
Term 3 (Spring)				
73	English	3	0	3
94	Sociology	3	0	3
652	Finance	3	0	3
615	Business Statistics	3	0	3
642	Accounting	2	2	3
664	Marketing	3	0	3
		17	2	18

2nd YEAR

		Class	Lab	Credits
Term 4 (Fall)				
643	Cost Accounting	2	2	3
650	Salesmanship	3	0	3
658	Business Law	3	0	3
666	Credit	3	0	3
667	Advertising	3	0	3
691	Personnel Administration	3	0	3
		17	2	18
Term 5 (Winter)				
75	Effective Speaking	3	0	3
651	Sales Management	3	0	3
659	Business Law	3	0	3
661	Office Management	3	0	3
668	Advertising	3	0	3
670	Office Machines	2	4	4
		17	4	19
Term 6 (Spring)				
662	Office Management	3	0	3
671	Office Machines	2	4	4
673	Market Research	3	0	3
675	Business English	3	0	3
695	Industrial Organization & Management	3	0	3
	Elective	3	0	3
		17	4	19

CURRICULUM OUTLINE

CHEMICAL TECHNOLOGY

1st YEAR

		Hours Per Week		
Term 1 (Fall)		Class	Lab	Credits
101	College Algebra and Trigonometry	4	0	4
224	Chemistry	3	3	4
127	Physics	3	2	4
71	English	3	0	3
416	Engineering Drawing	0	6	2
		13	11	17
Term 2 (Winter)				
102	Analytic Geometry and Calculus	3	0	3
225	Chemistry	3	3	4
128	Physics	3	2	4
72	English	3	0	3
92	Economics	3	0	3
		15	5	17
Term 3 (Spring)				
103	Analytic Geometry and Calculus	3	0	3
242	Chemistry	3	0	3
243	Chemistry (Qualitative)	3	4	5
129	Physics	3	2	4
73	English	3	0	3
		15	6	18

2nd YEAR

		Class	Lab	Credits
Term 4 (Fall)				
250	Organic Chemistry	3	6	5
244	Quantitative Chemistry	4	9	7
255	Chemical Engineering Stoichiometry	3	0	3
104	Analytic Geometry and Calculus or Elective	3	0	3
		13	15	18
Term 5 (Winter)				
251	Organic Chemistry	3	6	5
245	Quantitative Chemistry	3	6	5
256	Chemical Engineering Unit Operations	3	3	4
91	Psychology	3	0	3
105	Analytic Geometry and Calculus or Elective	3	0	3
		15	15	20
Term 6 (Spring)				
252	Organic Chemistry	3	6	5
246	Advanced Quantitative Chemistry	3	6	5
257	Chemical Engineering Unit Operations	3	6	5
94	Sociology	3	0	3
		12	18	18

CURRICULUM OUTLINE

CIVIL TECHNOLOGY

1st YEAR

		Hours Per Week		
Term 1 (Fall)		**Class**	**Lab**	**Credits**
101	College Algebra and Trigonometry	4	0	4
71	English	3	0	3
141	Physics	3	2	4
212	Chemistry	3	2	4
430	Engineering Drawing	0	3	1
400	Manufacturing Processes	2	2	3
490	Orientation	1	0	0
		16	9	19
Term 2 (Winter)				
102	Analytic Geometry and Calculus	3	0	3
72	English	3	0	3
142	Physics	3	2	4
440	Applied Mechanics	3	0	3
213	Chemistry	3	2	4
438	Descriptive Geometry	1	2	2
		16	6	19
Term 3 (Spring)				
103	Analytic Geometry and Calculus	3	0	3
73	English	3	0	3
143	Physics	3	2	4
424	Strength of Materials	3	3	4
476	Surveying	3	6	5
436	Architectural Drawing	0	3	1
		15	14	20

2nd YEAR

		Class	Lab	Credits
Term 4 (Fall)				
104 485	Analytic Geometry and Calculus or Construction Planning	3	0	3
91	Psychology	3	0	3
443	Strength of Materials	3	3	4
477	Surveying	2	6	4
437	Architectural Drawing	0	3	1
382	Electricity	3	2	4
		14	14	19
Term 5 (Winter)				
105 426	Analytic Geometry and Calculus or Fluid Mechanics	3	0	3
92	Economics	3	0	3
483	Route Surveying and Highway Design	3	3	4
439	Architectural Drawing	0	3	1
470	Reinforced Concrete Design	3	3	4
690	Construction Law	3	0	3
		15	9	18
Term 6 (Spring)				
106 427	Analytic Geometry and Calculus or Heating, Ventilating, and Air Conditioning	3	0	3
94	Sociology	3	0	3
472	Building Design	3	6	5
487	Soil Mechanics	3	3	4
471	Structural Steel Design	3	3	4
		15	12	19

CURRICULUM OUTLINE

DENTAL HYGIENE

1st YEAR

		Hours Per Week		
Term 1 (Fall)		Class	Lab	Credits
71	English	3	0	3
232	Chemistry	3	3	4
573	Gross Anatomy and Physiology	2	2	3
601	Typewriting (or Elective)	5	0	2
740	Dental Anatomy	2	2	3
755	Dental Hygiene and Ethics	2	0	2
09	First Aid	2	0	2
		19	7	19
Term 2 (Winter)				
72	English	3	0	3
574	Gross Anatomy and Physiology	2	2	3
575	Histology and Embryology	2	2	3
700	Dental Manikin Practice	1	4	3
741	Dental Anatomy	2	2	3
233	Chemistry	3	3	4
		13	13	19
Term 3 (Spring)				
73	English	3	0	3
559	Microbiology	2	4	4
721	Hygiene	2	0	2
701	Dental Manikin Practice	1	4	3
753	Radiology	3	0	3
758	Dental Office Practice	3	2	4
		14	10	19

2nd YEAR

Term 4 (Fall)				
585	Pharmacology	3	0	3
704	Clinical Dental Hygiene	0	12	4
744	Preventive Dentistry	4	0	4
754	General Pathology	2	0	2
783	Dental Health Education	2	2	3
91	Psychology	3	0	3
		14	14	19
Term 5 (Winter)				
94	Sociology	3	0	3
705	Clinical Dental Hygiene	0	12	4
785	Health Services in Schools	3	0	3
587	Public Health	2	0	2
760	Dental Laboratory Practice	2	2	3
766	Oral Pathology	2	0	2
767	Anesthesia	2	0	2
		14	14	19
Term 6 (Spring)				
75	Effective Speaking	3	0	3
92	Economics	3	0	3
706	Clinical Dental Hygiene	0	12	4
764	School Organization	3	0	3
761	Nutrition	3	0	3
768	Special Dental Practices	2	2	3
		14	14	19

CURRICULUM OUTLINE

ELECTRICAL TECHNOLOGY

1st YEAR

		Hours Per Week		
		Class	Lab	Credits
Term 1 (Fall)				
101	College Algebra and Trigonometry	4	0	4
71	English	3	0	3
330	Engineering Drawing	0	3	1
323	Physics (Electrical Fundamentals)	4	3	5
300	Manufacturing Processes	1	3	2
81	Industrial Safety and First Aid	2	0	2
		14	9	17
Term 2 (Winter)				
102	Analytic Geometry and Calculus	3	0	3
72	English	3	0	3
331	Engineering Drawing	0	3	1
328	Physics (Electricity and Magnetism)	4	3	5
329	Introduction to Solid State Physics	4	0	4
301	Electrical Construction and Maintenance	1	3	2
		15	9	18
Term 3 (Spring)				
103	Analytic Geometry and Calculus	3	0	3
73	English	3	0	3
332	Engineering Drawing	0	3	1
340	Electrical Circuits	4	3	5
348	Electronics	4	3	5
302	Electrical Construction and Maintenance	0	3	1
		14	12	18

2nd YEAR

		Class	Lab	Credits
Term 4 (Fall)				
	Technical elective or mathematics	3	0	3
349	Electronics	4	3	5
345	Electrical Machines	4	3	5
333	Electrical Design	0	3	1
368	Network Analysis	4	0	4
92	Economics	3	0	3
		18	9	21
Term 5 (Winter)				
91	Psychology	3	0	3
350	Electronics	4	3	5
346	Electrical Machines	4	3	5
334	Electrical Design	0	3	1
	Technical elective or mathematics	3	0	3
393	Organization and Management	3	0	3
		17	9	20
Term 6 (Spring)				
94	Sociology	3	0	3
351	Electronics	4	3	5
394	Industrial Relations	3	0	3
354	Automatic Controls	4	3	5
335	Electrical Design	0	3	1
		14	9	17

CURRICULUM OUTLINE

ENGINEERING SCIENCE

1st YEAR

		Hours Per Week		
Term 1 (Fall)		**Class**	**Lab**	**Credits**
71	English	3	0	3
110	Calculus	4	0	4
120	Physics	3	3	4
224	Chemistry	3	3	4
417	Engineering Drawing	0	6	2
		13	12	17
Term 2 (Winter)				
72	English	3	0	3
91	Psychology	3	0	3
111	Calculus	4	0	4
121	Physics	3	3	4
225	Chemistry	3	3	4
438	Descriptive Geometry	0	3	1
		16	9	19
Term 3 (Spring)				
73	English	3	0	3
112	Calculus	4	0	4
122	Physics	3	3	4
226	Chemistry	3	3	4
465	Statics	4	0	4
		17	6	19

2nd YEAR

Term 4 (Fall)				
75	Effective Speaking	3	0	3
113	Calculus	3	0	3
123	Physics	3	3	4
466	Dynamics	4	0	4
446	Metallurgy	3	3	4
	or			
478	Surveying	2	6	4
		16–15	6–9	18
Term 5 (Winter)				
94	Sociology	3	0	3
114	Differential Equations	3	0	3
124	Physics	3	3	4
371	Electrical Circuits	3	3	4
453	Strength of Materials	3	3	4
		15	9	18
Term 6 (Spring)				
92	Economics	3	0	3
115	Differential Equations	3	0	3
125	Physics	3	3	4
116	LaPlace Transforms	3	0	3
	or			
140	Astronomy	3	3	4
372 373	Electrical Circuits or Electronics	3	3	4
		15	6–9	17–18

CURRICULUM OUTLINE

LIBERAL ARTS AND SCIENCES

1st YEAR

	Hours Per Week		
	Class	Lab	Credits
Term 1 (Fall)			
English Composition	3	0	3
Development of Western Civilization	3	0	3
**Mathematics or Elective	3–4	0	3–4
Biology or Chemistry	3	3	4
French, German or Philosophy	3	0	3
Physical Education	0	2	1
	15–16	5	17–18
Term 2 (Winter)			
English Composition	3	0	3
Development of Western Civilization	3	0	3
**Mathematics or Elective	3–4	0	3–4
Biology or Chemistry	3	3	4
French, German or Philosophy	3	0	3
Physical Education	0	2	1
	15–16	5	17–18
Term 3 (Spring)			
English Composition	3	0	3
Development of Western Civilization	3	0	3
**Mathematics or Elective	3–4	0	3–4
Biology or Chemistry	3	3	4
French, German or Philosophy	3	0	3
Physical Education	0	2	1
	15–16	5	17–18

2nd YEAR

Term 4 (Fall)			
Literature	3	0	3
Psychology, Economics, or Sociology	3	0	3
Language or Elective	3	0	3
*Electives	6	0–2	6–7
Physical Education	0	2	1
	15	2–4	16–17
Term 5 (Winter)			
Literature	3	0	3
Psychology, Economics, or Sociology	3	0	3
Language or Elective	3	0	3
*Electives	6	0–2	6–7
Physical Education	0	2	1
	15	2–4	16–17
Term 6 (Spring)			
Literature	3	0	3
Psychology, Economics, or Sociology	3	0	3
Language or Elective	3	0	3
*Electives	6	0–2	6–7
Physical Education	0	2	1
	15	2–4	16–17

* Electives may be taken for a concentration in the areas of humanities, social science, mathematics, science, or business.

** Students who have completed 3½ units of high-school mathematics may enroll in an elective subject.

CURRICULUM OUTLINE

MECHANICAL TECHNOLOGY

1st YEAR

Term 1 (Fall)		Hours Per Week Class	Lab	Credits
101	College Algebra and Trigonometry	4	0	4
71	English	3	0	3
141	Physics	3	2	4
212	Chemistry	3	2	4
430	Engineering Drawing	0	3	1
400	Manufacturing Processes	2	2	3
490	Orientation	1	0	0
		16	9	19

Term 2 (Winter)		Class	Lab	Credits
102	Analytic Geometry and Calculus	3	0	3
72	English	3	0	3
142	Physics	3	2	4
440	Applied Mechanics	3	0	3
431	Engineering Drawing and Descriptive Geometry	1	3	2
401	Manufacturing Processes	1	3	2
91	Psychology	3	0	3
		17	8	20

Term 3 (Spring)		Class	Lab	Credits
103	Analytic Geometry and Calculus	3	0	3
73	English	3	0	3
143	Physics	3	2	4
402	Manufacturing Processes	1	3	2
441	Applied Mechanics	3	0	3
446	Metallurgy	3	3	4
		16	8	19

2nd YEAR

Term 4 (Fall)		Class	Lab	Credits
104 493	Analytic Geometry and Calculus or Organization and Management	3	0	3
92	Economics	3	0	3
442	Strength of Materials	3	2	4
426	Fluid Mechanics	3	0	3
378	Electricity	3	0	3
403	Precision Measurement	1	3	2
		16	5	18

Term 5 (Winter)		Class	Lab	Credits
105 494	Analytic Geometry and Calculus or Organization and Management	3	0	3
450	Quality Control	3	2	4
432	Mechanical Design	3	3	4
444	Thermodynamics	3	3	4
379	Electronics	3	2	4
		15	10	19

Term 6 (Spring)		Class	Lab	Credits
94	Sociology	3	0	3
448	Mechanical Equipment	3	3	4
404	Materials and Processes	3	3	4
433	Mechanical Design	3	3	4
405	Instrumentation and Control	3	3	4
		15	12	19

CURRICULUM OUTLINE

MEDICAL OFFICE ASSISTANT

1st YEAR

		Hours Per Week		
Term 1 (Fall)		Class	Lab	Credits
71	English	3	0	3
150 170	Mathematics or Mathematics	3	0	3
232	Chemistry	3	3	4
530	Zoology	3	3	4
601	Typewriting	5	0	2
500	Ethics & Orientation	0	2	1
		17	8	17
Term 2 (Winter)				
72	English	3	0	3
233	Chemistry	3	3	4
520	Medical Office Procedures	1	2	2
531	Zoology	3	3	4
602	Typewriting	5	0	2
604	Shorthand	5	0	3
		20	8	18
Term 3 (Spring)				
73	English	3	0	3
532	Anatomy	3	3	4
545	Clinic	2	4	4
603	Typewriting	5	0	3
605	Shorthand	5	0	3
		18	7	17

2nd YEAR

		Class	Lab	Credits
Term 4 (Fall)				
533	Physiology	3	3	4
550	Microbiology	2	4	4
633	Office Practice	2	3	3
612	Medical Shorthand or Elective*	5	0	3
546	Clinic	2	4	4
		14	14	18
Term 5 (Winter)				
92	Economics	3	0	3
547	Clinic	2	4	4
551	Microbiology	2	4	4
585	Pharmacology	3	0	3
613	Medical Shorthand or Elective*	5	0	3
634	Accounting	1	3	2
		16	11	19
Term 6 (Spring)				
91	Psychology	3	0	3
94	Sociology	3	0	3
552	Microbiology	2	6	4
614	Medical Shorthand or Elective*	2	3	3
635	Office Practice and Accounting	2	3	3
675	Business English	3	0	3
		15	12	19

* Electives: Genetics, Histology, Parasitology offered in 1963.

COURSE DESCRIPTIONS

COURSE NUMBERING SYSTEM

All Broome Tech courses are numbered in terms of the Department of the College responsible for teaching these courses.

0-09	Physical Education
10-99	General Education and Liberal Arts and Sciences
100-199	Mathematics-Physics
200-299	Chemical Technology
300-399	Electrical Technology
400-499	Mechanical Technology
500-599	Medical Office Assistant
600-699	Business Technology
700-799	Dental Hygiene

PHYSICAL EDUCATION

01 through 06 Physical Education — 1 Credit each

2 Laboratory Hours

Basic instruction and activity in a variety of carryover sports such as archery, badminton, bowling, golf, horseshoes, tennis, weight training. Participation in and rudimentary instruction in such team sports as football, soccer, basketball, volleyball, softball.

Note: Students enrolled in Physical Education must wear a regulation gym uniform, which can be purchased at the College Bookstore (men, $3; women, $6) and pay a $2.00 lock fee (refundable) and a $6.00 towel fee (refundable at $2 per quarter should the student terminate early). This charge will be collected by the Athletic Office at the start of the fall quarter.

09 Standard First Aid Course — 2 Credits

2 Class Hours

Fundamentals of first aid as outlined by the standard Red Cross course. Oral reports on a variety of health topics.

GENERAL EDUCATION
LIBERAL ARTS AND SCIENCES

10 Beginning French — 3 Credits each
11
12

3 Class Hours

Foundation for more advanced work in written and spoken French: grammar, syntax, vocabulary, pronunciation.

13 Intermediate French — 3 Credits each
14
15

3 Class Hours

Further development of facility in oral and written French: grammar review, composition, readings.

(*Prerequisite*: *French 12 or equivalent*)

19 Beginning German — 3 Credits each
20
21

3 Class Hours

Foundation for more advanced work in written and spoken German: grammar, syntax, vocabulary, pronunciation.

22 Intermediate German — 3 Credits each
23
24

3 Class Hours

Further development of facility in oral and written German: grammar review, composition, readings.

(*Prerequisite*: *German 21 or equivalent*)

30 English Composition — 3 Credits each
31
32

3 Class Hours

History of the English language. Introduction to semantics. Principles of composition in expository, descriptive, persuasive, and research writing. Use of readings as examples and models.

33 Literature — 3 Credits each
34
35

3 Class Hours

Designed to develop the student's ability to read literature with understanding and with sensitivity to literary and human values. Emphasis on English and American writers.

45 Development of Western Civilization
46
47

3 Credits each

3 Class Hours

The study of Western culture from ancient times: development of social, economic, intellectual, and religious institutions: current world problems.

55 Economics
56
57

3 Credits each

3 Class Hours

An introduction to the major areas of modern economic life. Includes development of the American economic system, production, income, consumption, money and banking, public finance, economic stability, international trade and finance, applications of economic theory and principles to current problems.

58 Sociology
59
60

3 Credits each

3 Class Hours

An introduction to the organization, activities, and problems of human groups: culture, ethnocentrism, culture changes, socialization, urbanization, social stratification, social institutions, and social problems.

61 Philosophy
62
63

3 Credits each

3 Class Hours

The nature and methods of philosophy through analysis of the divisions of philosophy: logic, ways of knowing, criteria of truth, aesthetics, ethics, and reality. Covers such issues as correct thinking, natural and supernatural, origin and development of life, idealism, naturalism, dualism, contemporary moral problems.

64 Psychology
65
66

3 Credits each

3 Class Hours

A study of man's perception of, and reaction on, the environment. The nature and manner of development of the means by which man perceives and reacts. Learning, remembering and thinking as components of adaptation. Evaluation of emotions as influences on behavior. A prerequisite for further courses in psychology.

71 English

3 Credits

3 Class Hours

The first in a series of courses to help the student understand language and to use it effectively, to formulate, organize, and express ideas in speech and writing, and to enlarge his experience through critical reading. The nature of language, its history. Similarities and differences in written and oral English. Organization of ideas. Levels of usage. Mechanics of writing. Elements of style. Speeches and themes.

72 English

3 Credits
3 Class Hours

The second in a series of courses to help the student understand language and to use it effectively, to formulate, organize, and express ideas in speech and writing, and to enlarge his experience through critical reading. Introduction to semantics. Improvement of reading speed and comprehension. Effective speaking. Speeches and themes.

73 English

3 Credits
3 Class Hours

Designed to broaden the student's understanding of our culture by introducing him to some challenging ideas of recognized writers. Through selected readings the student is encouraged to improve the quality of his thinking and to develop his skill of expression by means of class discussions and oral and written reports. A research paper is required.

75 Effective Speaking

3 Credits
3 Class Hours

Speech communication through voice, words, and action. Voice production, diction, platform presence. Organization of ideas. Practice in presenting speeches of different types. Techniques of group discussion.

77 American Literature

3 Credits
3 Class Hours

A study of American Literature during the 19th and 20th centuries through the reading of selected works by such writers as Emerson, Thoreau, Whitman. Insofar as possible, works are read in their entirety and stress is placed upon the emergence of ideas important in our own times.

81 Industrial Safety and First Aid

2 Credits
2 Class Hours

Accident sources and causes; safety as a responsibility of workers and management; job safety analysis; education, training, supervision, and organization for safety; accident reports and records; principles of first aid.

88 Descriptive Astronomy

3 Credits
3 Class Hours

Description of structure of astronomical universe; features of stars, planets, satellites, nebulae, galaxies; instruments and techniques of astronomical research; history, orbits, purposes of artificial earth satellites and interplanetary vehicles.

90 Logic

3 Credits
3 Class Hours

An introductory course in the logical methods of thought and analysis. Emphasis on fallacies, deduction, induction, and subjective factors in sound thinking.

91 Psychology 3 Credits

3 Class Hours

Designed to give the student insight into human nature to help him understand his own behavior and the behavior of others. Emphasis on perception, intelligence, learning, memory, motivation, personality, psychological measurement, problems of adjustment.

92 Economics 3 Credits

3 Class Hours

Economic facts and principles and their application to the American society. Production; consumption, forms of business ownership; national income; money, credit, banking; taxation; social security; labor-management relations; business cycles; international trade; comparison of capitalism with other economic systems.

94 Sociology 3 Credits

3 Class Hours

Human groups, their activities, interrelationships, forces influencing them, and the influence of groups upon individuals and society. Emphasis on the foundations of society, our cultural environment, the family, education, religion, the growth of the individual within the social framework, the aged in modern society, social progress.

96 Introduction to Philosophy 3 Credits

3 Class Hours

An introduction to the basic problems of philosophy by the study of such issues as the nature of truth, origin and development of life, idealism, naturalism, ethics, freedom, the natural and the supernatural.

97 Political Science 3 Credits

3 Class Hours

The basic and continuing principles and issues of American democracy as presented through a study of the great documents and institutions of our society.

99 Music in the Modern Culture 3 Credits

3 Class Hours

An introductory course in music history, literature, and appreciation, emphasizing important music and musicians in the 18th, 19th, and 20th centuries. Designed for students with little background in music. Listening to selected recordings, and study of important political and historical events which influenced the music of the period.

MATHEMATICS AND PHYSICS

COURSE DESCRIPTIONS

101 College Algebra and Trigonometry — 4 Credits

4 Class Hours

Topics in algebra and trigonometry of which a workable knowledge are necessary in technical courses, including significant digits, scientific notation, solutions of algebraic and exponential equations, logarithms, determinants, quadratic equations, trigonometric functions, trigonometric equations, oblique triangles, laws of sines and cosines, J-operator, and trigonometric scales on the slide rule.

102 Analytic Geometry and Calculus — 3 Credits

3 Class Hours

Rectangular coordinates in a plane, the straight line, slope and inclination, equations of curves, discussion of a curve, functions and limits, indeterminate forms, continuity, the derivative, differentiation of algebraic functions.

(*Prerequisite:* *101 College Algebra and Trigonometry*)

103 Analytic Geometry and Calculus — 3 Credits

3 Class Hours

Applications of derivatives, maxima and minima, differentials, indefinite integral, definite integral, applications of definite integral, area between curves, volumes by cylindrical washers and shells, length of plane curve, centroid and second moment of area, moment of inertia.

(*Prerequisite:* *102 Analytic Geometry and Calculus*)

104 Analytic Geometry and Calculus — 3 Credits

3 Class Hours

The conic sections, general and standard equations of conics, transformation of coordinates, differentiation of transcendental functions, hyperbolic functions, polar coordinates, parametric equations, velocity and acceleration in curvilinear motion, curvature of plane curves.

(*Prerequisite:* *103 Analytic Geometry and Calculus*)

105 Analytic Geometry and Calculus — 3 Credits

3 Class Hours

Integration by standard forms, integration by parts, trigonometric substitution, partial fractions, use of table of integrals, applications of definite integrals, trapezoidal and parabolic approximation, improper integrals, indeterminate forms, infinite series, expansion of functions in series.

(*Prerequisite:* *104 Analytic Geometry and Calculus*)

106 Analytic Geometry and Calculus 3 Credits

3 Class Hours

Solid analytic geometry, partial derivatives, multiple integrals, elementary differential equations, first order differential equations, integrable combinations, exact differentials, linear differential equations of first order, second order differential equations, homogenous equations of second order, method of undetermined coefficients.

(*Prerequisite*: *105 Analytic Geometry and Calculus*)

107 College Algebra 3 Credits

3 Class Hours

Real numbers, fundamental operations of algebra, factoring, fractions, linear equations in one unknown, systems of linear equations, exponents and radicals, quadratic equations in one and two unknowns, variation, ratio and proportion, progressions, binomial theorem, inequalities. Note: College Alegbra 107 has the same scope as Mathematics 150, but is designed for students with better preparation in mathematics, and is taught on a more rigorous and comprehensive level.

108 College Algebra and Trigonometry 3 Credits

3 Class Hours

A continuation of 107; introduction to college trigonometry. Theory of equations, permutations and combinations, probability, infinite series, partial fractions. The trigonometric functions, functions of acute angles, the special angles, trigonometric identities.

(*Prerequisite*: *107 College Algebra*)

109 College Trigonometry 3 Credits

3 Class Hours

Related angle, radian measure, graphs of trigonometric functions, functions of two angles, trigonometric equations, oblique triangles, inverse trigonometric functions, complex numbers, graphical and analytical composition of ordinates.

(*Prerequisite*: *108 College Algebra and Trigonometry*)

110 Calculus 4 Credits

4 Class Hours

Rectangular coordinates in a plane, length of a line, slope, angle between lines, variables and constants, equations and loci, the straight line, discussion of the equation of a locus, derivation of equation of a locus, functions and limits, increments of functions, continuity, derivative of a function, differentiation of algebraic functions, explicit and implicit differentiation, inverse functions, successive differentiation tangents and normals to plane curves, acceleration increasing and decreasing functions, maxima and minima of functions of one variable, inflection points.

111 Calculus

4 Credits
4 Class Hours

Differentials, approximation of small errors, Rolle's theorem, mean-value theorem, Newton's method for solving equations, indefinite integral, change of variable in integration, definite integral, area under a curve, work done by a variable force, fundamental theorem of integral calculus, mean-value theorem for integrals, plane areas, volume by cylindrical discs and cylindrical shells, lengths of curve, centroid of area, centroid of solid, moment of inertia. Conics; circle, ellipse, parabola, hyperbola.

(*Prerequisite*: *110 Calculus*)

112 Calculus

4 Credits
4 Class Hours

Differentiation of transcendental functions; trigonometric functions, inverse trigonometric functions, exponential functions, logarithmic functions, hyperbolic functions. Polar coordinates, parametric equations, curvilinear motion, curvature of plane curves, integration by standard forms, integration by parts, integration by trigonometric substitution, partial fractions, reduction formulas, table of integrals.

(*Prerequisite*: *111 Calculus*)

113 Calculus

3 Credits
3 Class Hours

Applications of definite integrals, plane areas, volumes, length of curve, surface area, centroids, theorem of Pappus, approximate integration, improper integrals, indeterminate forms, infinite series, Taylor's and MacLaurin's series, calculation of logarithms, solid analytic geometry, partial derivatives, multiple integrals.

(*Prerequisite*: *112 Calculus*)

114 Differential Equations

3 Credits
3 Class Hours

The differential equation, hyperbolic functions. Differential equations of the first order; separable equations, particular solutions, dynamics, chemical reactions, integrable combinations, homogenous equations, equivalence of solutions, linear equation, electric circuits, Bernoulli's equation, orthogonal trajectories. Linear equation with constant coefficients; rectilinear motion, deflection of beams, undetermined coefficients, variation of parameter, forced vibrations and electric circuits.

(*Prerequisite*: *113 Calculus*)

115 Differential Equations

3 Credits
3 Class Hours

Special higher order equations; reducible to linear with constant coefficients, dependent or independent variable missing, suspended cable. Simultaneous equations; systems of linear equations, roots of unity, linear equation of second order; exact equations, Riccati equation, adjoint equation. Series solutions; power series, Frobenins series. Partial differential equations; partial derivatives, separation of variables, vibrating string.

(*Prerequisite. 114 Differential Equations*)

116 LaPlace Transforms — 3 Credits

3 Class Hours

Application of LaPlace transform methods to various engineering problems involving ordinary and linear differential equations.

(*Prerequisite: 114 Differential Equations*)

120 Physics — 4 Credits

3 Class Hours 3 Laboratory Hours

Statics and heat: Composition and resolution of vectors; equilibrium; friction. Solution of problems in static mechanics. Temperature, calorimetry, heat transfer, fusion, vaporization, elementary thermodynamics.

121 Physics — 4 Credits

3 Class Hours 3 Laboratory Hours

An introduction to dynamics including rectilinear motion, Newton's second law, gravitation, motion in a place, work and energy, impulse and momentum, rotation, elasticity, harmonic motion, hydrostatics, surface tension, hydro-dynamics, viscosity.

(*Prerequisite: 120 Physics*)

122 Physics (Electricity and Magnetism) — 4 Credits

3 Class Hours 3 Laboratory Hours

Study of the fundamental laws of electric and magnetic fields with application to elementary circuit problems. Electrostatic fields; induced emfs; inductance, capacitance, dielectrics; steady currents, and simple transients. Laboratory work consists of electrostatic, electromagnetic, and circuit measurements.

(*Prerequisites: 121 Physics, 111 Calculus*)

123 Physics (Electricity and Magnetism) — 4 Credits

3 Class Hours 3 Laboratory Hours

Study of the fundamental laws of electric and magnetic fields with application to elementary circuit problems. Electrostatic fields, induced emfs; inductance; capacitance, dielectrics; steady currents, and simple transients. Laboratory work consists of electrostatic, electromagnetic, and circuit measurements.

(*Prerequisites: 122 Physics, 112 Calculus, 226 Chemistry*)

124 Physics — 4 Credits

3 Class Hours 3 Laboratory Hours

Light and Sounds: Wave motion, sound and acoustical phenomena, geometrical optics, optical parts, optical instrumentation. Physical optics, nature of light, interferometry, polarization of light.

125 Physics — 4 Credits

3 Class Hours 3 Laboratory Hours

An introduction to atomic and nuclear physics: Charged atomic particles, nuclear atom, electromagnetic radiation, X-rays, waves and particles. The hydrogen atom, optical spectra and electron distribution, natural radioactivity, nuclear fission, fundamental particles, isotopes, particle accelerators.

(*Prerequisites: 124 Physics, 112 Calculus*)

127 Physics — 4 Credits

3 Class Hours 3 Laboratory Hours

Introductory mechanics. Measurement, forces and vectors, statics, uniform motion, accelerated motion, work, power, energy, elasticity, theory and mechanics of liquids and gases.

128 Physics — 4 Credits

3 Class Hours 2 Laboratory Hours

Electricity and magnetism: Fundamental laws of electric and magnetic fields, potential, Ohm's law, Lenz's law, simple AC and DC circuits.

129 Physics — 4 Credits

3 Class Hours 2 Laboratory Hours

Light and sound. Wave motion and sound generation, geometrical and physical optics, nature of light, action of lenses, mirrors, prisms, applications to optical instruments.

135 Science — 3 Credits

2 Class Hours 2 Laboratory Hours

A survey of Physics and Chemistry: Motion, force, gravitation, atomic theory, the periodic table, energy and momentum, kinetic theory, electricity and magnetism, the nature of light.

136 Physics — 3 Credits

2 Class Hours 2 Laboratory Hours

Heat: Temperature, heat quantities and heat transfer.

Mechanics: Velocity and acceleration, force and motion, friction, work and energy, power, concurrent and non-concurrent forces, projectile motion, momentum, centripetal forces, simple harmonic motion.

137 Physics — 3 Credits

2 Class Hours 2 Laboratory Hours

Electricity: Ohm's Law, circuits, instruments, power, electro-chemistry, induction, alternating current.

Light: Reflection, refraction, lenses, optical instruments, color, atomic and nuclear physics.

(*Prerequisite*: *136 Physics*)

140 Astronomy — 4 Credits

3 Class Hours 3 Laboratory Hours

Fundamentals of astronomy including the earth's motion, earth satellite, the planets and the solar system, stellar structure and the sidereal universe. The laboratory will stress some practical aspects of astronomy, the use of the telescope, and observing techniques.

(*Prerequisite*: *103 Analytic Geometry and Calculus*)

141 Physics

4 Credits
3 Class Hours 2 Laboratory Hours

Mechanics: Composition and resolution of vectors, equilibrium, moment of a force, rectilinear motion, gravitation, motion in a plane, work and energy, impulse and momentum, rotation, hydrostatics, Bernoulli's equation.

Sound: Wave motion, vibrating bodies, stationary waves, resonance, harmonics, interference.

142 Physics

4 Credits
3 Class Hours 2 Laboratory Hours

Heat: Temperature, expansion, quantity of heat, transfer of heat, 1st and 2nd laws of thermodynamics, thermal properties of solids, liquids, and gases.

Light: Nature and propagation of light, reflection and refraction, lenses, illumination, color, interference and diffraction, polarization.

143 Physics (Electricity and Magnetism)

4 Credits
3 Class Hours 2 Laboratory Hours

Coulomb's law, atomic structure, Rutherford scattering, the electric field, Gauss' law, potential gradient, capacitance and dielectrics, current and resistance, Ohm's law, Joule's law, D-C circuits, Kirchoff's rules, electrochemistry and thermoelectricity, the magnetic field and current, Faraday's and Long's laws, induced emf, magnetic properties of matter, inductance, A-C circuits, and e-m waves.

(*Prerequisite*: *101 College Algebra and Trigonometry*)

150 Mathematics

3 Credits
3 Class Hours

Origin and development of the number system; the fundamental operations with real numbers; linear equations and applied problems; ratio; proportion and percentage; measurement and computations; exponents; variation; quadratic equations, functions and graphs.

151 Mathematics

3 Credits
3 Class Hours

A continuation of Mathematics 150: Functions and graphs. Algebra applied to business; statistics; logarithms; progressions.

(*Prerequisite*: *150 Mathematics*)

CHEMICAL TECHNOLOGY

COURSE DESCRIPTIONS

212 Chemistry — 4 Credits

3 Class Hours 2 Laboratory Hours

Basic laws, principles, and theories of chemistry. Structure of matter, periodicity, chemical action, states of matter, and solutions.

213 Chemistry — 4 Credits

3 Class Hours 2 Laboratory Hours

A continuation of Chemistry 212. Acids, bases, and salts; ionization, selected elements and topics in organic chemistry.

(*Prerequisite*: *212 Chemistry*)

224 Chemistry — 4 Credits

3 Class Hours 3 Laboratory Hours

Fundamental principles and laws underlying chemical action, their integration with the theories of atomic structure and chemical binding, and correlation with the position of the elements on the periodic chart. Atomic structure, the periodic chart, chemical bonding, water, and the states of matter.

225 Chemistry — 4 Credits

3 Class Hours 3 Laboratory Hours

A continuation of Chemistry 224. Solutions, oxidation-reduction, ionization and electrolysis, acids, bases and salts, chemical equilibrium, and coordination compounds.

(*Prerequisite*: *224 Chemistry*)

226 Chemistry — 4 Credits

3 Class Hours 3 Laboratory Hours

A continuation of Chemistry 225. Qualitative analysis.

(*Prerequisite*: *225 Chemistry*)

230 Chemistry — 3 Credits

4 Class Hours

A basic course in chemistry designed for non-technical students who require knowledge of chemical principles, applications, and terminology.

232 Chemistry — 4 Credits

3 Class Hours 3 Laboratory Hours

The basic concepts of inorganic chemistry in their functional capacity of providing foundation for understanding organic and biochemistry. Consideration is given to the elementary tools of chemistry, composition of substances, kinetic and molecular theories, atomic structure and bonding, solutions and colloids, ions in solution, and nucleonics.

233 Chemistry 3 Credits

3 Class Hours 3 Laboratory Hours

The basic concepts of organic and biochemistry with consideration given to the basic types of organic compounds, their structures and reactions, and also to carbohydrates, lipids, and proteins and their functions in metabolism.

(*Prerequisite*: *232 Chemistry*)

242 Chemistry 3 Credits

3 Class Hours

An introductory course designed to prepare the student for the mathematical operations encountered in more advanced chemistry courses.

(*Prerequisite*: *225 Chemistry*)

243 Qualitative Chemistry 5 Credits

3 Class Hours 4 Laboratory Hours

A theoretical discussion of ionization constants, solubility products and equilibrium constants as influencing qualitative analysis. Laboratory work includes the detection and identification of the more important cations and anions including work on the analysis of mixtures. Emphasis on various tests: Flame coloration, blowpipe, bead, open and closed tube, solubility, and confirmation. Use of the hand spectroscope and light microscope.

(*Prerequisite*: *225 Chemistry*)

244 Quantitative Chemistry 7 Credits

4 Class Hours 9 Laboratory Hours

The application of physical and chemical theory to the more important gravimetric and volumetric procedures. The analytical balance, errors, precision, significant figures, and preparation of samples for analysis. Laboratory work in the application of various methods of quantitative analysis including gravimetry, neutralimetry, precipitimetry, redoximetry, and compleximetry.

(*Prerequisites*: *242 Chemistry, 243 Chemistry*)

245 Quantitative Chemistry 5 Credits

3 Class Hours 6 Laboratory Hours

Instrumental methods of analytical chemistry, primarily electrochemical methods. Laboratory experiments in potentiometry, polarography, coulometry, conductimetry, electrodeposition and radiochemistry.

(*Prerequisite*: *244 Quantitative Chemistry*)

246 Advanced Quantitative Chemistry 5 Credits

3 Class Hours 6 Laboratory Hours

Instrumental methods of analytical chemistry, primarily optical methods. Laboratory experiments in visibile, ultra-violet, and infra red spectrophotometry; flame photometry; chemical microscopy; and gas, column, and paper chromotography.

(*Prerequisite*: *245 Quantitative Chemistry*)

250 Organic Chemistry 5 Credits

3 Class Hours 6 Laboratory Hours

The important classes of carbon compounds such as aliphatic and aromatic hydrocarbons, alcohols, alkyl and aryl halides, ethers, carboxylic acids, in terms of modern electronic and resonance theories.

(*Prerequisite*: *243 Qualitative Chemistry or 226 Chemistry*)

251 Organic Chemistry 5 Credits

3 Class Hours 6 Laboratory Hours

A continuation of the study of functional groups of organic compounds followed by a study of tautomerism, stereochemistry, carbohydrates, dyes, proteins, and polymers in terms of modern electronic and resonance theories.

(*Prerequisite*: *250 Organic Chemistry*)

252 Organic Chemistry 5 Credits

3 Class Hours 6 Laboratory Hours

The identification of organic compounds by correlation of fundamental properties and behavior of organic compounds with their structures. Functional group determination is made by a study of physical constants, analysis of the elements, solubility tests, class reactions, and derivative preparation.

(*Prerequisite*: *251 Organic Chemistry*)

255 Chemical Engineering Stoichiometry 3 Credits

3 Class Hours

The application of chemistry, physics, and mathematics to the solution of chemical engineering problems. Special emphasis on the solution of problems dealing with material and energy balances.

(*Prerequisites*: *242 Chemistry, 225 Chemistry, 101 College Algebra and Trigonometry*)

256 Chemical Engineering Unit Operations 4 Credits

3 Class Hours 3 Laboratory Hours

A theoretical treatment of the basic unit operations of chemical engineering, including fluid flow, heat transfer, evaporation, distillation, drying, gas absorption and filtration. Laboratory experimentation is conducted using pilot plant size equipment, and formal reports utilizing the students' data are required.

(*Prerequisite*: *255 Chemical Engineering Stoichiometry*)

257 Chemical Engineering Unit Operations 5 Credits

3 Class Hours 6 Laboratory Hours

A continuation of Chemical Engineering Unit Operations 256.

(*Prerequisite*: *256 Chemical Engineering Unit Operations*)

ELECTRICAL TECHNOLOGY

COURSE DESCRIPTIONS

300 Manufacturing Processes — 2 Credits

1 Class Hour 3 Laboratory Hours

Manufacturing processes related to the electrical industry, provide a basic knowledge in bench operations and tool operations involving the use of the lathe, drill press, vertical end mill, band saw, engraving machine and power hack saw. Practice and study of oxyacetylene and arc welding.

301 Electrical Construction and Maintenance — 2 Credits

1 Class Hour 3 Laboratory Hours

General trade practices to promote acquisition of basic manipulative skills. Installation and maintenance of electrical equipment. Different types of wiring systems used in industry and homes; trouble-shooting and repair of electrical equipment. Study and practice of fabrication methods used in the electrical industry, national electrical code rules and shop safety practices.

(*Prerequisite*: *300 Manufacturing Processes*)

302 Electrical Construction and Maintenance — 1 Credit

3 Laboratory Hours

Continuation of Electrical Construction and Maintenance 301.

(*Prerequisite*: *301 Electrical Construction and Maintenance*)

323 Physics (Electrical Fundamentals) — 5 Credits

4 Class Hours 3 Laboratory Hours

Vector and dimensional analysis of static and dynamic systems, establishing a foundation for further study of electrical phenomena.

328 Physics (Electricity and Magnetism) — 5 Credits

4 Class Hours 3 Laboratory Hours

Electric and magnetic fields relating to the electric circuit, charge, current, potential, resistance, capacitance and inductance.

(*Prerequisite*: *323 Physics* (*Electrical Fundamentals*))

329 Introduction to Solid State Physics — 4 Credits

4 Class Hours

Investigation of extra-nuclear atomic structure. Energy levels, valence, conduction in solids. Introduction to transistor theory.

(*Prerequisite*: *323 Physics* (*Electrical Fundamentals*))

330 Engineering Drawing — 1 Credit

3 Laboratory Hours

Techniques of geometric construction, principles of orthographic projection, sections, theory and application of dimensioning and tolerancing. Lettering practice and development of technical sketching.

331 Engineering Drawing — 1 Credit

3 Laboratory Hours

Discussion of shop processes and procedures to facilitate the understanding of drafting problems. Types and representation of threads, bolts, nuts, keys, keyways and locking devices. Preparation of assembly drawings. Applications of auxiliary views and of axonometric projection. Methods of reproducing drawings.

(*Prerequisite*: *330 Engineering Drawing*)

332 Engineering Drawing — 1 Credit

3 Laboratory Hours

Solutions of mathematical problems using graphical methods. Development of scale layout and construction of various common forms of nomographs. Geometric derivations of various types of mathematical relationships.

(*Prerequisite*: *331 Engineering Drawing*)

333 Electrical Design — 1 Credit

3 Laboratory Hours

Application of electrical drafting principles to the planning of power layout and lighting design. Manufacturer's catalogs, charts and the National Electrical Code form essential reference material. Materials lists, and schedules are prepared as part of each project.

(*Prerequisite*: *332 Engineering Drawing*)

334 Electrical Design — 1 Credit

3 Laboratory Hours

Electrical drafting in the field of electronics. A study of symbols, conventions, layout procedures, and circuit sequence that comprise an electronic circuit. Individual student projects.

(*Prerequisite*: *333 Electrical Design*)

335 Electrical Design — 1 Credit

3 Laboratory Hours

Circuit symbols and types of diagrams used in control mechanisms. Discussions of the principles of control devices, their construction and operation. Individual student problems.

(*Prerequisite*: *334 Electrical Design*)

340 Electrical Circuits — 5 Credits

4 Class Hours 3 Laboratory Hours

Circuits (D-C, A-C, single and polyphase). Analysis of series and parallel circuits by the application of Kirchhoff's Laws, Thevenin's and Norton's Theorems.

(*Prerequisite*: *328 Physics* (*Electricity and Magnetism*))

345 Electrical Machines 5 Credits

4 Class Hours 3 Laboratory Hours

Theory, operation and application of D-C machines and machine control devices. Introduction to power transformer characteristics, application and equivalent circuits.

(*Prerequisite*: *340 Electrical Circuits*)

346 Electrical Machines 5 Credits

4 Class Hours 3 Laboratory Hours

Continuation of the study of transformers, A-C machines and control devices, special machines. Actual test procedures and methods of predicting characteristics.

(*Prerequisite*: *345 Electrical Machines*)

348 Electronics 5 Credits

4 Class Hours 3 Laboratory Hours

Introduction to building blocks of electronics. Functions of high vacuum, gas and crystal diodes. Functions of high vacuum and gas triodes, triode transistors. Multi-element vacuum tubes, multi-element gas tubes, tetrode transistors. Special purpose tubes and transistors.

(*Prerequisite*: *328 Physics* (*Electricity and Magnetism*))

349 Electronics II 5 Credits

4 Class Hours 3 Laboratory Hours

Use of electronic building blocks in functioning circuitry. Analysis and performance prediction of single unit circuits. Introduction to feedback control.

(*Prerequisite*: *348 Electronics*)

350 Electronics 5 Credits

4 Class Hours 3 Laboratory Hours

Behavior and application of linear circuits made up of two or more fundamental circuits. Applications of feedback. Sinusoidal oscillators.

(*Prerequisite*: *349 Electronics*)

351 Electronics 5 Credits

4 Class Hours 3 Laboratory Hours

Behavior and applications of non-linear circuits. Circuits with heavy feedback. Wave shaping. Non-sinusoidal oscillators. Counters.

(*Prerequisite*: *351 Electronics*)

354 Automatic Controls 5 Credits

4 Class Hours 3 Laboratory Hours

The operation of industrial equipment used in the automatic control of industrial motors and generators. Design of basic motor control circuits. Laboratory work involving the connecting, operation, and trouble-shooting of these control devices.

(*Prerequisite*: *346 Electrical Machines*)

368 Network Analysis 4 Credits

4 Class Hours

Networks (passive and active). Analysis of complex networks by the application of Kirchhoff's Laws, Thevenin's and Norton's Theorems.

(*Prerequisite*: *340 Electrical Circuits*)

371 Electrical Circuits 4 Credits

3 Class Hours 3 Laboratory Hours

Basic principles of electric circuit analysis. Vector analysis of single and polyphase circuits. Solution of simple networks by use of standard circuit theorems.

Steady state solution using sinusoidal and D-C excitation. Transient response using linear differential equations and LaPlace transforms.

(Prerequisite: 123 Physics)

372 Electrical Circuits 4 Credits

3 Class Hours 3 Laboratory Hours

A continuation of Electrical Circuits 371.

(Prerequisite: 371 Electrical Circuits)

373 Electronics 4 Credits

3 Class Hours 3 Laboratory Hours

Application of high-vacuum, gas-filled, and semiconductors to rectifier and amplifier circuits.

(Prerequisite: 371 Electrical Circuits)

378 Electricity 3 Credits

3 Class Hours

A lecture demonstration course in AC circuits for non-electrical majors including a short introduction to electrical machines and controls.

(Prerequisite: 143 Physics (Electricity), 103 Analytic Geometry and Calculus)

379 Electronics 4 Credits

3 Class Hours 2 Laboratory Hours

Electronics and instrumentation for mechanical students. Vacuum tubes, gas tubes, transistors; application of tubes and transistors to standard industrial electronic circuits.

(Prerequisite: 378 Electricity)

382 Electricity 4 Credits

3 Class Hours 2 Laboratory Hours

Electrical Machines lighting, control, power, requirements for buildings.

(Prerequisite: 143 Physics)

393 Organization and Management 3 Credits

3 Class Hours

Principles, functions and coordination of industrial organization; management, costs, product development, marketing, methods analysis, work measurement, plant layout, material handling, production and inventory control.

394 Industrial Relations 3 Credits

3 Class Hours

The problems of staffing an enterprise and the subsequent employer-employee relations. The principles and methods used in industrial relations with emphasis on the personnel administration aspects. Guidance and counsel to students who will face the problem of finding suitable employment as well as establishing long-range vocational goals.

MECHANICAL TECHNOLOGY
CIVIL TECHNOLOGY
COURSE DESCRIPTIONS

400 Manufacturing Processes 3 Credits

2 Class Hours 2 Laboratory Hours

A comprehensive study of basic manufacturing processes and materials, to provide a knowledge of melting and casting metal, powdered metallurgy, plastics, and elementary aspects of metal-cutting machine tools. Practice and study of oxy-acetylene, arc, and resistance welding.

401 Manufacturing Processes 2 Credits

1 Class Hour 3 Laboratory Hours

The elements of machine tool operation involving the use of the lathe, miller, shaper, drill press and fundamental bench operations. Study of cutting speeds, feeds, coolants, threads, tapers, and tool grinding.
(*Prerequisites: 400 Manufacturing Processes, 101 College Algebra and Trigonometry, 430 Engineering Drawing*)

402 Manufacturing Processes 2 Credits

1 Class Hour 3 Laboratory Hours

Continuation of 401 plus operations of the surface grinder and the cylindrical grinder, advanced lathe operations, jig boring, gear cutting, lapping, honing and scrapping. Practice and study of turret lathe and automatic screw machine operations.
(*Prerequisite: 401 Manufacturing Processes*)

403 Precision Measurement 2 Credits

1 Class Hour 3 Laboratory Hours

The theory and practice of precision measurement of the dimensional character of parts and the measurement of physical quantities such as time, mass, temperature, flow pressure, speed and others which are utilized for control of physical systems.
(*Prerequisites: 402 Manufacturing Processes, 141 Physics, 142 Physics, 143 Physics*)

404 Materials and Processes 4 Credits

3 Class Hours 3 Laboratory Hours

Advanced study of the properties and applications of engineering materials and the processes involved in their utilization.
(*Prerequisites: 400 Manufacturing Processes, 446 Metallurgy, 442 Strength of Materials*)

405 Instrumentation and Control 4 Credits

3 Class Hours 3 Laboratory Hours

The application of indicating and recording devices to measurement of control and process variables; the theory and application of basic mechanical, electrical, hydraulic, pneumatic and electronic control devices.
(*Prerequisites: 444 Thermodynamics 403 Precision Measurement, 379 Electronics*)

414 Mechanical Drawing — 1 Credit

3 Laboratory Hours

A basic drafting course specifically designed for Business Technology students.

416 Engineering Drawing — 2 Credits

6 Laboratory Hours

An introductory course in communication by mechanical drawings. Practice in the use of freehand and instruments for orthographic projection, drafting conventions, dimensioning, typical layouts and working drawings of chemical devices and equipment.

417 Engineering Drawing — 2 Credits

6 Laboratory Hours

Basic orientation in engineering drawing: line and instrument exercises, lettering, orthographic projection, dimensioning and notes, auxiliary views, sections, threads and fasteners, assemblies and sketching.

418 Shop — 2 Credits

1 Class Hour 3 Laboratory Hours

Observation and discussion of the machines and materials used in industry to produce machines, appliances, containers, etc. Practice in processing metals, leading to acquaintance with technical and shop terms and a knowledge of what is done in machine shops.

424 Strength of Materials — 4 Credits

3 Class Hours 3 Laboratory Hours

The relation between stress and strain, welded and riveted joints, torsion, shear and moment in beams, stresses in beams.

The laboratory includes tests on wood, concrete, metals and plastics in accordance with ASTM testing specifications.

(*Prerequisites*: *440 Mechanics, 102 Analytic Geometry and Calculus*)

426 Fluid Mechanics · — 3 Credits

3 Class Hours

The behavior of compressible and non-compressible fluids under static and dynamic conditions, including principles of hydro-statics, pressure measurement, flow, flow measurement, viscosity, hydro-dynamic power and force.

(*Prerequisitics*: *142 Physics, 103 Analytic Geometry and Calculus, 440 Applied Mechanics*)

427 Heating, Ventilating and Air Conditioning — 3 Credits

3 Class Hours

The fundamentals of heating, ventilating and air conditioning including the theory, design, layout and installation of steam, hot water, warm air heating system and air conditioning systems.

(*Prerequisites*: *103 Analytic Geometry and Calculus, 142 Physics*)

430 Engineering Drawing
1 Credit

3 Laboratory Hours

Basic orientation in engineering drawing, line and instrument exercises, lettering, orthographic projection, dimensioning and notes, auxiliary views and sections.

431 Engineering Drawing and Descriptive Geometry
2 Credits

1 Class Hour 3 Laboratory Hours

Rules and practice for threads, fasteners, assemblies and sketching. Investigation of principles of descriptive geometry designed to determine true relationships between lines and surfaces, to find intersections, to ascertain clearances, and to decide relationships affecting the design of parts in a machine or structure.

(*Prerequisite: 430 Engineering Drawing*)

432 Mechanical Design
4 Credits

3 Class Hours 3 Laboratory Hours

Machine motion and basic mechanisms. Machine motion includes rectilinear and curvilinear displacement, velocity, and acceleration. Basic mechanisms include linkages, cams and gears.

(*Prerequisites: 431 Engineering Drawing and Descriptive Geometry, 441 Applied Mechanics, 442 Strength of Materials*)

433 Mechanical Design
4 Credits

3 Class Hours 3 Laboratory Hours

Principles of mechanical design covering the selection of materials, stress investigation, and the design of fundamental machine elements.

(*Prerequisites: 432 Mechanical Design, 402 Manufacturing Processes*)

436 Architectural Drawing
1 Credit

3 Laboratory Hours

The history of residential architecture. Preliminary planning; materials.

(*Prerequisite: 438 Descriptive Geometry*)

437 Architectural Drawing
1 Credit

3 Laboratory Hours

Development of working drawings for use in residential type construction, including plot plans, floor plans, elevations, details, mechanical anl electrical layouts.

(*Prerequisite: 436 Architectural Drawing*)

438 Descriptive Geometry
1 Credit

3 Laboratory Hours

Basic principles of descriptive geometry to determine true relationships between lines and surfaces, to find intersections, to locate elements or tangents, to ascertain clearances, or to decide relationships affecting the design of parts in a machine or structure.

(*Prerequisite: 430 Engineering Drawing*)

439 Architectural Drawing
1 Credit

3 Laboratory Hours

Sketching and perspective drawing; an introduction to the planning of commercial-industrial type buildings.

(*Prerequisite: 437 Architectural Drawing*)

440 Applied Mechanics 3 Credits

3 Class Hours

Principles of statics. Free body diagrams, trusses, force systems in space, friction, centroids, and moments of inertia.

(*Prerequisites*: *101 College Algebra and Trigonometry, 141 Physics*)

441 Applied Mechanics 3 Credits

3 Class Hours

Principles of dynamics. Velocity, acceleration, mass moments of inertia, kinetics, plane motion, work, power, kinetic and potential energy, impulse and momentum.

(*Prerequisite*: *440 Applied Mechanics*)

442 Strength of Materials 4 Credits

3 Class Hours 2 Laboratory Hours

Stress and strain, elasticity, torsion, welded joints, riveted joints, beam stresses, beam deflections, eccentric loading, column stresses.

(*Prerequisites*: *440 Applied Mechanics, 103 Analytic Geometry and Calculus*)

443 Strength of Materials 4 Credits

3 Class Hours 3 Laboratory Hours

A continuation of Strength of Materials 442. Design of beams and columns, bending, shearing and combined stresses, deflection of beams, statically indeterminate beams, energy methods, and design of timber members and connections.

Laboratory includes tests on cement, aggregates, concrete, and highway materials conducted in accordance with ASTM and AASHO procedures and fatigue tests on metals.

(*Prerequisite*: *442 Strength of Materials*)

444 Thermodynamics 4 Credits

3 Class Hours 3 Laboratory Hours

The interchange of energy between mechanical and thermal form. Energy relationships are developed from the perfect gas laws and the general energy equation. These relationships are employed to study practical heat cycles such as air compression, the internal combustion engine, steam generation, pumps, and refrigeration.

(*Prerequisites*: *441 Applied Mechanics, 142 Physics, 103 Analytic Geometry and Calculus, 426 Fluid Mechanics*)

446 Metallurgy 4 Credits

3 Class Hours 3 Laboratory Hours

Fundamentals of the physical metallurgy of ferrous and non-ferrous alloys, investigation of the physical properties of metals, hardness tests, thermal analysis, grain structure determination.

(*Prerequisites*: *142 Physics, 212 Chemistry*)

448 Mechanical Equipment 4 Credits

3 Class Hours 3 Laboratory Hours

Thermodynamic properties and the utility of mechanical equipment such as fuel burners, internal combustion engines, pumps, fans, refrigeration and air conditioning units, gas turbines, and hydraulic turbines.

(*Prerequisite*: *444 Thermodynamics*)

450 Quality Control 4 Credits

3 Class Hours 2 Laboratory Hours

Application of inspection methods to insure the control of quality in production. The use of single, double and sequential sampling plans, factors which produce normal and skewed distribution, standard deviation and areas under the normal curve, control charts, machine capability, product reliability, random numbers, and statistical dimensioning.

(*Prerequisites*: *403 Precision Measurement, 103 Analytic Geometry and Calculus*)

453 Strength of Materials 4 Credits

3 Class Hours 3 Laboratory Hours

The relationship between stress and strain, the calculation of stresses in machine parts, beams and columns; the use of shear and moment diagrams, the determination of Moments of Inertia and centers of gravity, the analysis of the effect loading on stress distribution. Tests on wood, concrete, plastics and metal on standard testing machines in accordance with A. S. T. M. testing procedures.

465 Statics 4 Credits

4 Class Hours

The concepts and principles of forces, moments, and couples in static force systems.

(*Prerequisites*: *111 Calculus, 121 Physics*)

466 Dynamics 4 Credits

4 Class Hours

The concepts and principles of kinetic particles and systems, and the general methods of analysis of such systems.

(*Prerequisite*: *465 Statics*)

470 Reinforced Concrete Design 4 Credits

3 Class Hours 3 Laboratory Hours

Design, investigation and detailing of basic reinforced concrete structural members. Term project.

(*Prerequisite*: *443 Strength of Materials*)

471 Structural Steel Design 4 Credits

3 Class Hours 3 Laboratory Hours

Design, investigation, and detailing of basic structural steel members. Term project.

(*Prerequisite*: *470 Reinforced Concrete Design*)

472 Building Design 5 Credits

3 Class Hours 6 Laboratory Hours

Commercial-industrial building design with emphasis on cost estimating.

(*Prerequisite*: *439 Architectural Drawing*)

476 Surveying 5 Credits

3 Class Hours 6 Laboratory Hours

Plane surveying: distance measurement, note keeping, compass surveying, leveling, angle measurement, care and use of instruments, stadia, plane table topography, traversing, coordinates, area computation, mapping.

(*Prerequisite*: *101 College Algebra and Trigonometry*)

477 Surveying 4 Credits

2 Class Hours 6 Laboratory Hours

Continuation of surveying 476: Observation of meridian, triangulation, land surveys, horizontal and vertical control, hydrographic surveying and photogrammetry.

(*Prerequisite*: *476 Surveying*)

478 Surveying 4 Credits

2 Class Hours 6 Laboratory Hours

Fundamentals of plane surveying. Use and care of equipment. Traversing and area computation. Notekeeping and mapping.

483 Route Surveying and Highway Design 4 Credits

3 Class Hours 3 Laboratory Hours

Problems of route selection, field technique, route design, construction and maintenance. Earthwork, simple, compound, spiral and vertical curves are covered in detail with selected reading assignments. Term project.

(*Prerequisites*: *477 Surveying, 103 Analytic Geometry and Calculus*)

485 Construction Planning 3 Credits

3 Class Hours

Construction planning and management techniques. Selection of the proper equipment and methods, including the following topics: tractors, excavation, tires, conveyors, compressed air, drilling and blasting, tunneling, grouting, pumping, production of aggregates, and safety.

487 Soil Mechanics 4 Credits

3 Class Hours 3 Laboratory Hours

The origin and nature of soil, soil density, sampling soil water, flow nets and seepage forces, classification, frost action, stabilization, stress, consolidation, settlement, shearing strength, stability, embankments, dams, retaining walls, piles and underground conduits. The laboratory covers ASTM and AASHO specifications used in classifying and predicting behavior of soils.

(*Prerequisite*: *424 Strength of Materials*)

490 Orientation

0 Credits
1 Class Hour

A discussion of the task that the student in engineering technology must face. Information relative to the technical fields. Study and use of the slide rule.

493 Organization and Management

3 Credits
3 Class Hours

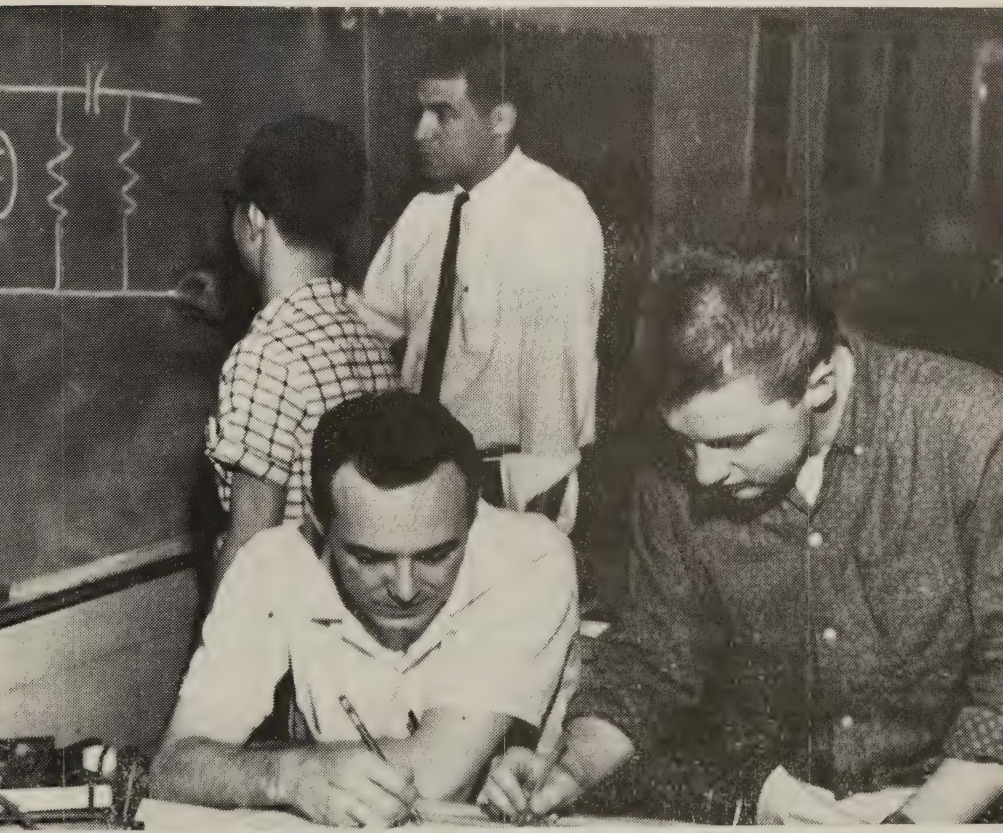
Principles, functions, and coordination of industrial organization: Management, costs, product development, methods analysis, work measurement, plant layout, material handling, production and inventory control.

494 Organization and Management

3 Credits
3 Class Hours

Techniques used in industrial organization functions, costs, marketing, methods analysis, work measurement, plant layout, material handling, production and inventory control.

(*Prerequisite*: *493 Organization and Management*)



MEDICAL OFFICE ASSISTANT

COURSE DESCRIPTIONS

500 Ethics & Orientation — 1 Credit

2 Laboratory Hours

Introduction to medical science. Professional ethics and the responsibility of the physician's assistant to herself, the physician and the patient.

501 Biology — 4 Credits

3 Class Hours 3 Laboratory Hours

Principles that are fundamental to living organisms, such as metabolism, genetics, evolution, ecology, and conservation.

502 Biology — 4 Credits

3 Class Hours 3 Laboratory Hours

Structure, morphology, physiology; phylogeny of animals and their relatedness to man.

(*Prerequisite*: *501 Biology*)

503 Biology — 4 Credits

3 Class Hours 3 Laboratory Hours

Structure, physiology, reproduction and phylogeny of plants; their influence on man.

(*Prerequisite*: *502 Biology*)

520 Office Procedures — 2 Credits

1 Class Hour 2 Laboratory Hours

Practical medical assisting procedures used in a physician's office. Techniques of caring for the office, fundamentals of first aid, and an understanding of professional ethics and jurisprudence.

530 Zoology — 4 Credits

3 Class Hours 3 Laboratory Hours

The morphology, physiology, and phylogeny of invertebrate animals. Emphasis on the parasites of man.

531 Zoology — 4 Credits

3 Class Hours 3 Laboratory Hours

Vertebrate zoology including the gross structure and physiology, the microscopic details, and the organ systems of animals in general. Lectures and laboratory work are introductory to the field of animal life.

(*Prerequisite*: *530 Zoology*)

532 Anatomy 4 Credits

3 Class Hours 3 Laboratory Hours

Normal human structure. The laboratory work illustrates these structures by dissection and microscopic study of foetal pig and cat.

(*Prerequisite: 531 Zoology*)

533 Physiology 4 Credits

3 Class Hours 3 Laboratory Hours

Fundamental physiological processes and how these processes regulate the human machine. Laboratory work includes microscopic study and chemical tests as well as principles and practice of electrocardiography and basal metabolism.

(*Prerequisite: 532 Anatomy*)

535 Histology 4 Credits

2 Class Hours 4 Laboratory Hours

The essential morphological characteristics of tissues and organs of the animal body. Offered 1963-64.

(*Prerequisite: 502 Biology*)

537 Genetics 4 Credits

3 Class Hours 3 Laboratory Hours

Investigation of basic laws of inheritance, integration of fundamental principles of biology, examination of implications for human welfare. Offered 1963-64.

(*Prerequisite: 502 Biology*)

538 Parasitology 4 Credits

2 Class Hours 4 Laboratory Hours

Life cycles and structure of invertebrate parasites, their adaptations for survival, effects on animal populations and their relationship to man. Offered 1963-64.

(*Prerequisite: 502 Biology*)

545 Clinic 4 Credits

2 Class Hours 4 Laboratory Hours

Analytical procedures, qualitative, quantitative and microscopic as performed in the physician's office laboratories. Urinalysis and complete blood counts.

(*Prerequisite: 233 Chemistry*)

546 Clinic 4 Credits

2 Class Hours 4 Laboratory Hours

Biological processes which go on in living matter. Practice of techniques developed in physiology: prothrombin time, coagulation mechanisms, enzyme tests; further microscopic study of urine and blood.

(*Prerequisite: 545 Clinic*)

547 Clinic 4 Credits

2 Class Hours 4 Laboratory Hours

The chemical analysis of body fluids including such tests as urea, cholesterol, uric acid, protein-bound-iodine, sodium, electrophoretic patterns, and the physiological significance of such tests.

(*Prerequisite: 546 Clinic*)

550 Microbiology 4 Credits

2 Class Hours 4 Laboratory Hours

The biology of the common bacteria and microorganisms. Laboratory work in the techniques of sterilization, disinfection; isolation and maintenance of pure cultures; staining and identification.

(*Prerequisites*: *531 Zoology, 233 Chemistry*)

551 Microbiology 4 Credits

2 Class Hours 4 Laboratory Hours

Immunology and the microbiology of important diseases. Antigen-antibody reactions.

(*Prerequisite*: *550 Microbiology*)

552 Microbiology 4 Credits

2 Class Hours 6 Laboratory Hours

Continued study of the principles of immunity and the practice of serological techniques. Agglutination and precipitation tests in general; inflammation and leucocyte response; blood grouping and typing.

(*Prerequisites*: *551 Microbiology, 533 Physiology*)

559 Microbiology 4 Credits

2 Class Hours 4 Laboratory Hours

General and medical microbiology. The basic phases of immunology. Asepsis, disinfection, sterilization, cultivation, identification. Tests used for diagnosis and immunization.

(*Prerequisite*: *233 Chemistry*)

560 Microbiology 5 Credits

3 Class Hours 4 Laboratory Hours

General and medical microbiology. The basic phases of immunology. Asepsis, disinfection, sterilization, cultivation, identification. Tests used for diagnosis and immunization.

(*Prerequisite*: *233 Chemistry*)

571 Anatomy and Physiology 4 Credits

3 Class Hours 3 Laboratory Hours

Gross and microscopic anatomy of the human body and the function of its parts. Emphasis is on form and structure. Laboratory work includes microscopic anatomy, dissection of the foetal pig and cat, a study of the systems and their inter-relationship.

572 Anatomy and Physiology 4 Credits

3 Class Hours 3 Laboratory Hours

Continued study of gross and microscopic anatomy, the relationship of function to structure, with emphasis on basic physiology. Some dissection and chemical tests. Foetal pig and cat.

(*Prerequisite*: *571 Anatomy and Physiology*)

573 Anatomy and Physiology 3 Credits

2 Class Hours 2 Laboratory Hours

Gross and miscroscopic anatomy of the human body and the function of its parts. Emphasis is on form and structure. Laboratory work includes microscopic anatomy, dissection of the foetal pig and cat, a study of the systems and their inter-relationship.

(*Prerequisite*: *572 Anatomy and Physiology*)

574 Anatomy and Physiology 3 Credits

2 Class Hours 2 Laboratory Hours

Continued study of gross and microscopic anatomy, the relationship of function to structure, with emphasis on basic physiology. Some dissection and chemical tests. Foetal pig and cat.

(*Prerequisite*: *573 Anatomy and Physiology*)

575 Histology and Embryology 3 Credits

2 Class Hours 2 Laboratory Hours

Lecture and laboratory study of the fundamental body tissues and different phases of embryonic development. Emphasis on the origin and structure of the tissues of the oral cavity.

(*Prerequisite*: *573 Anatomy and Physiology*)

585 Pharmacology 3 Credits

3 Class Hours

The action of drugs; their sources, properties, preparation; administration. The mathematics of pharmacy and prescription writing.

(*Prerequisites*: *574 Anatomy and Physiology, 559 Microbiology or equivalent*)

587 Public Health 2 Credits

2 Class Hours

An overall picture of public health (history, philosophy, structure, services) with emphasis on community dental health. Field trips to various health agencies.

BUSINESS TECHNOLOGY

COURSE DESCRIPTIONS

601 Typewriting — 2 Credits

5 Class Hours

A beginning sequence in touch typewriting to make the operator accurate, rhythmical and moderately rapid in the operation of the standard makes of office typewriters. Care of the machine, operation of the various parts. Business letters, simple tabulation, and the building of typewriting speed.

602 Typewriting — 2 Credits

5 Class Hours

A continuation of 601 Typewriting.

(*Prerequisite*: *601 Typewriting*)

603 Typewriting (Advanced) — 3 Credits

5 Class Hours

Continuation of basic skill building with emphasis on speed and advanced problems. Rough drafts; technical data such as specifications, manuscripts, legal papers.

(*Prerequisite*: *602 Typewriting*)

604 Shorthand — 3 Credits

5 Class Hours

A beginning course in the Gregg system, simplified. Basic principles and theory, some dictation at slow speeds.

605 Shorthand — 3 Credits

5 Class Hours

A review of shorthand theory. The development of shorthand writing ability at sustained speeds.

(*Prerequisite*: *604 Shorthand*)

606 Advanced Shorthand — 3 Credits

5 Class Hours

Training in speed building, English grammar and punctuation. Dictation from various fields of business and industry.

(*Prerequisite*: *605 Shorthand*)

607 Shorthand (Expert) — 3 Credits

5 Class Hours

A review of basic theory: brief forms, analogical word beginnings and endings, phrases. Training on special shortcuts used for attaining expert dictation speeds. Dictation of such material as committee hearings, court testimony, jury charge, convention speeches.

(*Prerequisite*: *606 Shorthand*)

608 Technical Shorthand

3 Credits
5 Class Hours

Dictation of technical material to be transcribed on the typewriter. Further drives for speed of dictation. Building of the technical vocabulary found in chemical, electrical, mechanical, civil engineering. Use of specifications, contracts, and letters from these fields and the building construction industry. Use of standard secretarial references and dictionaries.

(*Prerequisite*: *607 Shorthand*)

609 Technical Shorthand

3 Credits
5 Class Hours

Continuation of Shorthand 608.

(*Prerequisite*: *608 Shorthand*)

611 Business Mathematics

3 Credits
3 Class Hours

Review of fundamental operations; preparation and use of shortcut operations, instruction, review, and drill in percentage; cash and trade discounts; markup; payroll; sales, property and other taxes; simple and compound interest; bank discounts; interest; investments; annuities.

612 Medical Shorthand

3 Credits
5 Class Hours

Emphasis on the building of vocabulary and transcription speed as a continuation of Shorthand 605. Further drills for dictation speed. Introduction of medical dictation.

(*Prerequisite*: *605 Shorthand*)

613 Medical Shorthand

3 Credits
5 Class Hours

Dictation of medical material to be transcribed on the typewriter. Further drives for speed at taking dictation under the same standards described under shorthand. The building of medical vocabulary which can be taken in shorthand and transcribed accurately on the typewriter. The use of medical dictionaries.

(*Prerequisite*: *612 Shorthand*)

614 Medical Shorthand & Transcription

3 Credits
5 Class Hours

Dictation of medical material with emphasis on transcribing accurately with the typewriter. Further drives for speed at taking dictation and the building of medical vocabulary.

(*Prerequisite*: *613 Medical Shorthand*)

615 Business Statistics

3 Credits
3 Class Hours

Concepts and mechanics of basic statistical methods applicable to problems of business and economics.

(*Prerequisite*: *611 Business Mathematics*)

616 Transcription — 3 Credits

5 Class Hours

Development of skill in reading shorthand notes and producing from them a mailable manuscript on the typewriter.

(*Prerequisites*: *605 Shorthand, 602 Typewriting*)

633 Office Practice — 3 Credits

2 Class Hours 3 Laboratory Hours

Basic training in the operation of various types of adding machines. Experience at producing mailable transcripts from dictating machines. Theory and practice of filing business records. Telephone procedure.

(*Prerequisite*: *603 Typewriting*)

634 Accounting — 2 Credits

1 Class Hour 3 Laboratory Hours

The science of record keeping from the basic definition of terms and the fundamental accounting equation through books of original entry, final entry, and the trial balance. Practical problems based on each topic.

635 Office Practice and Accounting — 3 Credits

2 Class Hours 3 Laboratory Hours

Business management of the physician's office based on principles and procedures taught in courses 633 and 634. Medical forms used by insurance, workmen's compensation, and welfare departments.

(*Prerequisites*: *633 Office Practice, 634 Accounting*)

640 Accounting — 3 Credits

2 Class Hours 2 Laboratory Hours

The fundamentals of accounting from the books of original entry to the preparation of financial statements.

641 Accounting — 3 Credits

2 Class Hours 2 Laboratory Hours

Controlling accounts and special journals; accounting for specific items such as cash, accounts receivable, fixed assets.

(*Prerequisite*: *640 Accounting*)

642 Accounting — 3 Credits

2 Class Hours 2 Laboratory Hours

Voucher system, partnerships, corporations, analysis of original statements. Use of practice sets of books.

(*Prerequisite*: *641 Accounting*)

643 Cost Accounting 3 Credits

2 Class Hours 2 Laboratory Hours

Nature and purpose of cost accounting; accounting for direct labor, materials, factory burden; job cost, process cost, and standard cost principles and procedures; selling and distribution costs; budgets; executive use of cost figures; lectures and problems. Practice sets based upon different methods of costing.

(*Prerequisite*: *642 Accounting*)

644 Cost Accounting 3 Credits

2 Class Hours 2 Laboratory Hours

A continuation of 643 Accounting.

(*Prerequisite*: *643 Accounting*)

645 Machine Accounting 3 Credits

2 Class Hours 2 Laboratory Hours

The application of various types of machines to accounting, statistical, and payroll work based on the principles of double entry accounting. Punched card systems. Visits to local installations with these different types of equipment.

646 Tabulating Machine Wiring 3 Credits

2 Class Hours 2 Laboratory Hours

Control panel wiring of tabulating accounting equipment.

(*Prerequisite*: *645 Machine Accounting*)

647 Machine Accounting 3 Credits

2 Class Hours 2 Laboratory Hours

A continuation of 646 Tabulating Machine Wiring.

(*Prerequisite*: *646 Tabulating Machine Wiring*)

648 Survey of Business 3 Credits

3 Class Hours

The history and development of business and industry from ancient times to the present day. Designed to develop an understanding of the activities of business organization. A view of some of the problems which business and industry must routinely solve.

650 Salesmanship 3 Credits

3 Class Hours

The principles of sales with practical applications. Prospecting, product and service analysis, meeting objections, demonstrating, sales psychology, preparation of sales presentations.

651 Sales Management 3 Credits

3 Class Hours

Development of techniques of control in the administration of sales forces. Incentive systems, territory planning, development of sales potentials, and personnel problems peculiar to this field.

(*Prerequisite*: *650 Salesmanship*)

652 Finance 3 Credits

3 Class Hours

Financial principles and procedures. Detailed analyses of such factors as forms of business organization, corporate organization and problems, financial structure of business groups, financial instruments, surplus and reserves, credit and collections, reorganizations.

654 Payroll and Social Security 3 Credits

2 Class Hours 2 Laboratory Hours

Legislation behind and practical application of accounting for social security and tax withholding from the standpoint of the employer.

(*Prerequisite*: *641 Accounting*)

656 Office Practice 4 Credits

2 Class Hours 4 Laboratory Hours

Office Procedure. By means of a hypothetical business concern, students are rotated to the positions of office manager, receptionist, secretary, file clerk, and duplicating clerk. Emphasis on good grooming, desirable work attitudes, and business ethics. Techniques of telephone procedure, duplicating, switchboard operation. Use of standard secretarial office textbook as the basis of discussion and assignments.

(*Prerequisite*: *603 Typewriting*)

657 Office Practice 4 Credits

2 Class Hours 4 Laboratory Hours

Office Machines. Basic training in the operation of transcribing machines, four principal types of adding-calculating machines, electric typewriters. Fundamentals of filing covering the following areas: alphabetic, geographic, subject, numeric. Projects for advanced study and skill development.

(*Prerequisite*: *603 Typewriting*)

658 Business Law 3 Credits

3 Class Hours

Basic principles of contracts, involving the requisites for valid contracts, parties to the contracts, offer and acceptance, performance and discharge. Applications of contracts to agency. Legal aspects of partnerships and corporations; real estate law.

659 Business Law 3 Credits

3 Class Hours

Contracts as applied to sales, bailments, carriers, warehousemen. Negotiable instruments, the rights and obligations associated with them. Survey of bankruptcy.

(*Prerequisite*: *658 Business Law*)

660 Federal Tax 3 Credits

2 Class Hours 2 Laboratory Hours

Provisions of the Internal Revenue Act. Preparation of individual returns. Survey of the preparation of corporation and partnership returns.

661 Office Management — 3 Credits

3 Class Hours

The science of office management including cost control, work simplification, forms control, office service, office layout.

662 Office Management — 3 Credits

3 Class Hours

A continuation of 661 Office Management.

(*Prerequisite*: *661 Office Management*)

664 Marketing — 3 Credits

3 Class Hours

The distributive phase of economics, from the time a good or service is produced up to the point of consumption; marketing functions; classification of goods and of markets; marketing channels and agents in each; relationship to advertising and sales promotion; salesmanship; regulations and law affecting marketing; lectures, discussions, case problems.

666 Credit — 3 Credits

3 Class Hours

Types of credit, credit department organization, credit reports and information, credit risk factors, collection procedures.

667 Advertising — 3 Credits

3 Class Hours

Development, economics, and functions of this phase of business; cost and application; the various media; advertising as a vocation, testing and research utilization; some work on preparation of copy layouts; lectures, demonstrations, field trips.

668 Advertising — 3 Credits

3 Class Hours

A continuation of 667 Advertising.

(*Prerequisite*: *667 Advertising*)

669 Internal Auditing — 3 Credits

2 Class Hours 2 Laboratory Hours

The theory and practice of auditing funds and accounts within corporations and other firms. Preparation of reports.

(*Prerequisite*: *642 Accounting*)

670 Office Machines — 4 Credits

2 Class Hours 4 Laboratory Hours

Training and laboratory experience in the use of office machines, using a variety of makes and types of adding, calculating, accounting, transcribing, dictating, and duplicating machines and electric typewriters. Fundamentals of filing theory and systems.

(*Prerequisite*: *603 Typewriting*)

671 Office Machines 4 Credits

2 Class Hours 4 Laboratory Hours

A continuation of 670 Office Machines.

(*Prerequisites*: *602 Typewriting, 670 Office Machines*)

673 Market Research 3 Credits

3 Class Hours

Methods of collecting and interpreting marketing information. Specific applications to problems in market development, market potential, and sales management.

(*Prerequisites*: *664 Marketing, 615 Business Statistics*)

675 Business English 3 Credits

3 Class Hours

Composition and dictation of business correspondence. Preparation of reports and articles. Planning and presentation of speeches.

(*Prerequisite*: *71 English*)

690 Construction Law 3 Credits

3 Class Hours

The principles of business law applicable to the construction industry. A survey of public housing and urban renewal projects. Fundamentals of business and union contracts, insurance, mechanic's liens, labor-management relations, boundary-line rights and obligations, statutes and ordinances, monetary damages, injunction and mandamus, professional registration.

691 Personnel Administration 3 Credits

3 Class Hours

Techniques and methods used to achieve utilization of manpower in business through proper selection, placement, training, job evaluation, wage setting, and employee relations.

695 Industrial Organization and Management 3 Credits

3 Class Hours

Principles, functions, and techniques of industrial organization. Methods, cost, production control, product development, finance, physical facilities, quality control, plant engineering, industrial relations, job evaluation, sales, advertising, budgets, records.

DENTAL HYGIENE

COURSE DESCRIPTIONS

700 Dental Manikin Practice — 3 Credits

1 Class Hour 4 Laboratory Hours

Removal of simulated deposits and accretions on the teeth of manikins by study of instrumentation and polishing techniques, toothbrushing and general mouth cleanliness.

(*Prerequisite: 740 Dental Anatomy*)

701 Dental Manikin Practice — 3 Credits

1 Class Hour 4 Laboratory Hours

A continuation of 700 Dental Manikin Practice.

(*Prerequisite: 741 Dental Anatomy*)

704 Clinical Dental Hygiene — 4 Credits

12 Laboratory Hours

Dental prophylaxes performed on patients, mouth inspection, topical application of fluorides, home care instruction to the patient. Practice in dental assisting, sterilizing techniques; taking, processing and mounting radiographs; classroom instruction in dental health education to elementary and secondary school students.

(*Prerequisites: 701 Dental Manikin Practice, 574 Gross Anatomy and Physiology*)

705 Clinical Dental Hygiene — 4 Credits

12 Laboratory Hours

A continuation of 704 Clinical Dental Hygiene

706 Clinical Dental Hygiene — 4 Credits

12 Laboratory Hours

A continuation of 705 Clinical Dental Hygiene

721 Hygiene — 2 Credits

2 Class Hours

The various factors (physical, social, psychological) which affect the total health status of the individual, and the effective application of sound health principles in solving health problems.

740 Dental Anatomy — 3 Credits

2 Class Hours 2 Laboratory Hours

Nomenclature and growth and development of the deciduous and permanent teeth and surrounding tissues of the oral cavity. Drawing and carving of the teeth.

741 Dental Anatomy — 3 Credits

2 Class Hours 2 Laboratory Hours

A continuation of 740 Dental Anatomy.

(*Prerequisite: 740 Dental Anatomy*)

744 Preventive Dentistry 3 Credits

3 Class Hours

Preventive methods for maintaining the health of the mouth and control of dental caries. Detailed studies of the latest methods of caries control through laboratory tests, diet and fluoridation. Study of teeth not in normal occlusion, classification and probable factors causing orthodontic conditions. Introduction to abnormal oral conditions found in children with possible methods of treatment or correction.

(*Prerequisite: 575 Histology & Embryology*)

753 Radiology 3 Credits

3 Class Hours

Proper use of dental X-ray equipment; exposure, development and mounting of dental films. (*Prerequisite: 700 Dental Manikin Practice, 741 Dental Anatomy*)

754 General Pathology 2 Credits

2 Class Hours

A broad picture of the disease process through a study of common general diseases, their causes, results, treatment rationale. Emphasis on the principles of inflammation, healing, and repair.

(*Prerequisites: 559 Microbiology, 575 Histology & Embryology, 574 Gross Anatomy & Physiology*)

755 Dental Hygiene and Ethics 2 Credits

2 Class Hours

History of dental hygiene; ethical practice, proper oral hygiene technique.

758 Dental Office Practice 3 Credits

2 Class Hours 2 Laboratory Hours

Preparation for practical office assistance covering all phases of the functioning of a dental office. Personality training, reception of patients, use of telephone, typing, care of dental equipment and instruments, inventory and ordering of supplies, recall system, billing, filing.

(*Prerequisite: 601 Typewriting*)

760 Dental Laboratory Practice 3 Credits

3 Class Hours

An introduction to the restorative phase of dentistry. Dental laboratory procedures by lectures, demonstrations and actual processing of laboratory projects by students; history, property, and use of various dental laboratory materials.

761 Nutrition 2 Credits

2 Class Hours

Principles of nutrition, the roles and sources of the various food groups, the variables that influence nutritional needs.

(*Prerequisites: 233 Chemistry, 574 Gross Anatomy & Physiology*)

764 School Organization — 3 Credits

3 Class Hours

The school program in terms of organization, administration, finance, personnel, school laws and regulations, teacher organization and their interrelationships and implications.

766 Oral Pathology — 2 Credits

2 Class Hours

An extension of the course in General Pathology presenting oral diseases, their causes, recognition and treatment with particular emphasis on the application of principles covered in General Pathology.

(*Prerequisite*: *754 General Pathology*)

767 Anesthesia — 2 Credits

2 Class Hours

The principles of general and local anesthetics and patient management.

768 Special Dental Practices — 3 Credits

2 Class Hours 2 Laboratory Hours

Various speciality practices in dentistry: periodontia, prosthetics, orthodontics, endodontics, exodontics, oral surgery and maxio-facial surgery. Presentation of the nature, procedure, differences in types of practices and the role of the dental hygienist in each practice.

783 Dental Health Education — 3 Credits

2 Class Hours 2 Laboratory Hours

Preventive dentistry and methods of instructing school children and lay groups in dental health. Study and preparation of teaching aids and source materials for dental health education.

785 Health Services in Schools — 3 Credits

3 Class Hours

The place and function of health services in public education; laws and regulations which apply to health services in schools; factors which influence the health status of the child in the school environment; the coordination of school and community health services.

EXTENSION DIVISION

EVENING PROGRAM

The Extension Division of the college offers both sequential programs and unit courses on a part-time basis to employed persons. Its purpose is to provide opportunity for adults of the community to extend their education in specialized fields.

The sequential programs consist of accredited college-level curriculums in the fields of Chemical, Electrical, Mechanical, Business, and Production Management Technology. The Extension Diploma is awarded to those who successfully complete the required curriculums, which consist of approximately thirty-two semester hours. It is expected that the average student can complete these curriculums in four and one-half to five years on the basis of attending classes two evenings a week during each of the two semesters per year.

Applicants for the diploma programs must be high school graduates. The New York State Equivalency Diploma is accepted in lieu of the regular high school diploma. It is also necessary for the student to demonstrate ability to participate in college level classes and to possess any special abilities required for the curriculum for which he is applying.

The Extension Division also offers shorter programs and unit courses in Insurance, Real Estate Law, and other areas where there is an expressed need and where the college can furnish the necessary facilities. Admission requirements for these courses are dependent on each individual course as outlined in the Extension Division announcement.

The cost of tuition, books and supplies for a student taking a typical diploma program is approximately $100.00 per year (two terms). Most programs are approved by the Veterans Administration. Applicants wishing to obtain veterans educational benefits should consult their nearest veterans agency.

A separate catalog is printed outlining Extension Division programs and costs. For further information or announcement of courses, consult the Extension Coordinator, Broome Technical Community College.

SUMMER PROGRAM

Broome Tech offers, each Summer, a number of courses which are administered through the Extension Division. The program is primarily established to meet the needs of students from this or other colleges who require make-up work in various fields of study, or who wish to enroll in certain courses in order to accelerate their work.

In addition, a number of preparatory courses are offered, for students planning to enter various colleges in the Fall who feel that they need strengthening in particular subject areas.

The program is planned in the Spring of each year, and for information as to what courses are to be offered, interested persons should contact the Director of the Summer Program of the college.

PRE-TECHNICAL PROGRAM

CURRICULUM OUTLINE

I YEAR

		Hours Per Week		
		Class	Lab	Credits
Term 1 (Fall)				
8068	English	3	0	0
8010	Elements of Technical Mathematics	4	4	0
8020	Elements of Technical Physics	3	2	0
8024	Elements of Chemistry	3	2	0
8430	Engineering Drawing	0	3	1
		13	11	1
Term 2 (Winter)				
8069	English	3	0	0
8011	Elements of Technical Mathematics	4	4	0
8021	Elements of Technical Physics	3	2	0
8025	Elements of Chemistry	3	2	0
8431	Engineering Drawing	0	3	1
		13	11	1
Term 3 (Spring)				
8070	English	3	0	0
8012	Elements of Technical Mathematics	4	4	0
8022	Elements of Technical Physics	3	2	0
8026	Elements of Chemistry	3	2	0
8432	Engineering Drawing	0	3	1
		13	11	1

PRE-TECHNICAL

COURSE DESCRIPTIONS

8010 Elements of Technical Mathematics — 0 Credits
4 Class Hours 4 Laboratory Hours

8011 Elements of Technical Mathematics — 0 Credits
4 Class Hours 4 Laboratory Hours

8012 Elements of Technical Mathematics — 0 Credits
4 Class Hours 4 Laboratory Hours

A three-quarter sequence of integrated mathematics involving a mature treatment of algebra, geometry, and trigonometry. Special attention to technical computations and problems using the slide rule, logarithms, scientific notation and dimensional analysis. Continuous correlation of the work in mathematics with the work in physics and chemistry.

8020 Elements of Technical Physics — 0 Credits
3 Class Hours 2 Laboratory Hours

8021 Elements of Technical Physics — 0 Credits
3 Class Hours 2 Laboratory Hours

8022 Elements of Technical Physics — 0 Credits
3 Class Hours 2 Laboratory Hours

Mechanics, heat, sound, electricity, and light, as well as the study of properties of matter.

8024 Elements of Chemistry — 0 Credits
3 Class Hours 3 Laboratory Hours

8025 Elements of Chemistry — 0 Credits
3 Class Hours 3 Laboratory Hours

8026 Elements of Chemistry — 0 Credits
3 Class Hours 3 Laboratory Hours

A first program in chemistry designed to meet the needs of students in providing the necessary background for future work in the technical curriculums. Stress is laid on fundamental definitions; principles and theory; family relationships of important elements and their compounds; chemical calculations and practical applications.

8068 English — 0 Credits
3 Class Hours

8069 English — 0 Credits
3 Class Hours

8070 English — 0 Credits

3 Class Hours

A three-term sequence of courses designed to improve the student's mastery of language. Concentration on grammar, spelling, punctuation, and the organization of ideas for effective expository writing. Development of reading skills: speed, comprehension, vocabulary building.

8430 Engineering Drawing — 1 Credit

3 Laboratory Hours

Basic fundamentals of Engineering Drawing: Simple multiview drawing and sketching with stress on accuracy and neatness in lettering and linework.

8431 Engineering Drawing — 1 Credit

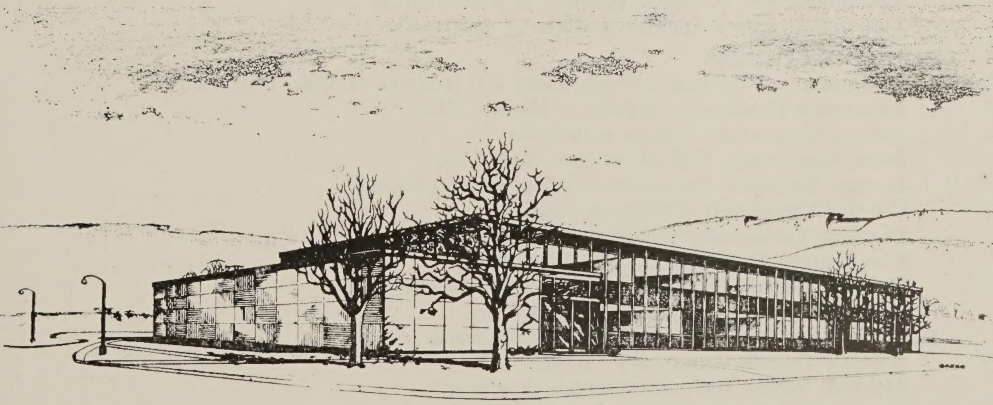
3 Laboratory Hours

Orthographic projection, auxiliary views, sectional views, pictorial drawing, freehand drafting; continued emphasis on accuracy and neatness.

8432 Engineering Drawing — 1 Credit

3 Laboratory Hours

Developments and intersections, threads and fastenings, welding drawings, working drawings, exploded views.



TITCHENER HALL

STATE UNIVERSITY OF NEW YORK
Central Administrative Office: Albany 1, N. Y.

Downstate Medical Center at Brooklyn (New York City)
Upstate Medical Center at Syracuse
College at Albany
College at Brockport
College at Buffalo
College at Cortland
College at Fredonia
College at Geneseo
College at New Paltz
College at Oneonta
College at Oswego
College at Plattsburgh
College at Potsdam
Harpur College
College of Forestry at Syracuse University
Maritime College at Fort Schuyler (New York City)
Long Island Center at Oyster Bay
College of Ceramics at Alfred University
College of Agriculture at Cornell University
College of Home Economics at Cornell University
School of Industrial and Labor Relations at Cornell University
Veterinary College at Cornell University

TWO-YEAR COLLEGES

Agricultural and Technical Institute at Alfred
Agricultural and Technical Institute at Canton
Agricultural and Technical Institute at Cobleskill
Agricultural and Technical Institute at Delhi
Agricultural and Technical Institute at Farmingdale
Agricultural and Technical Institute at Morrisville

COMMUNITY COLLEGES

(Locally-sponsored two-year colleges under the program of State University)

Adirondack Community College at Hudson Falls
Auburn Community College at Auburn
Bronx Community College at New York City
Broome Technical Community College at Binghamton
Corning Community College at Corning
Dutchess Community College at Poughkeepsie
Erie County Technical Institute at Buffalo
Fashion Institute of Technology at New York City
Hudson Valley Community College at Troy
Jamestown Community College at Jamestown
Jefferson County Community College
Mohawk Valley Technical Institute at Utica
Monroe Community College at Rochester
Nassau Community College at Mineola
New York City Community College of Applied Arts and Sciences at Brooklyn (New York City)
Onondaga County Community College at Syracuse
Orange County Community College at Middletown
Queensborough Community College at New York City
Rockland Community College at Suffern
Staten Island Community College at New York City
Suffolk County Community College at Selden
Ulster County Community College
Westchester Community College at Valhalla

BROOME TECHNICAL COMMUNITY COLLEGE
BINGHAMTON, NEW YORK